```
=> FIL WPIX
FILE 'WPIX' ENTERED AT 15:10:53 ON 08 JUN 2010
COPYRIGHT (C) 2010 THOMSON REUTERS
'BI ABEX BIEX' IS DEFAULT SEARCH FIELD FOR 'WPIX' FILE

=> D HIS NOFILE

     FILE 'HCAPLUS' ENTERED AT 11:16:27 ON 08 JUN 2010
                E US2003-734816/APPS
L1             1 SEA SPE=ON  ABB=ON  PLU=ON  US2003-734816/AP
                E US2003-458319P/APPS
L2             1 SEA SPE=ON  ABB=ON  PLU=ON  US2003-458319P/PRN
L3             1 SEA SPE=ON  ABB=ON  PLU=ON  (L1 OR L2)
                SEL L3 RN

     FILE 'REGISTRY' ENTERED AT 11:17:13 ON 08 JUN 2010
L4             8 SEA SPE=ON  ABB=ON  PLU=ON  (107-15-3/BI OR 13453-07-1/BI
                OR 136091-82-2/BI OR 1892-57-5/BI OR 27072-45-3/BI OR
                56-65-5/BI OR 7440-50-8/BI OR 9011-14-7/BI)

     FILE 'HCAPLUS' ENTERED AT 11:18:42 ON 08 JUN 2010
                SEL L3 AU
L5           391 SEA SPE=ON  ABB=ON  PLU=ON  ("MCCARLEY, ROBIN L."/AU OR
                "SOPER, STEVEN A."/AU OR "VAIDYA, BIKAS"/AU)
                SEL L3 PA

     INDEX '1MOBILITY, 2MOBILITY, ABI-INFORM, ADISCTI, AEROSPACE,
     AGRICOLA, ALUMINIUM, ANABSTR, ANTE, APOLLIT, AQUALINE, AQUASCI,
     AQUIRE, BABS, BIBLIODATA, BIOENG, BIOSIS, BIOTECHABS, BIOTECHDS,
     BIOTECHNO, CABA, CAPLUS, CASREACT, CBNB, CEABA-VTB, CERAB,
     CHEMINFORMRX,' ENTERED AT 14:08:16 ON 08 JUN 2010
                SEA SUBSTRAT? AND PATTER?
               ---------
              35   FILE 1MOBILITY
               1   FILE 2MOBILITY
             565   FILE ABI-INFORM
              11   FILE ADISCTI
           20220   FILE AEROSPACE
            2332   FILE AGRICOLA
             887   FILE ALUMINIUM
             263   FILE ANABSTR
            1052   FILE ANTE
             360   FILE APOLLIT
             406   FILE AQUALINE
            4594   FILE AQUASCI
               1   FILE AQUIRE
            1530   FILE BABS
               3   FILE BIBLIODATA
            2890   FILE BIOENG
           22485   FILE BIOSIS
            1571   FILE BIOTECHABS
            1571   FILE BIOTECHDS
            4371   FILE BIOTECHNO
            5113   FILE CABA
          137490   FILE CAPLUS
             472   FILE CASREACT
              59   FILE CBNB
             575   FILE CEABA-VTB
            1606   FILE CERAB
```

```
       112   FILE CHEMINFORMRX
        56   FILE CIN
       749   FILE CIVILENG
     25843   FILE COMPENDEX
       339   FILE COMPUAB
        53   FILE COMPUSCIENCE
        98   FILE CONFSCI
       174   FILE COPPERLIT
       196   FILE CORROSION
         1   FILE CROPB
       109   FILE CROPU
         4   FILE CSNB
        10   FILE DDFB
       139   FILE DDFU
    530832   FILE DGENE
      4867   FILE DISSABS
         1   FILE DKF
        10   FILE DRUGB
       816   FILE DRUGU
      3304   FILE ELCOM
      3039   FILE EMA
       116   FILE EMBAL
     17440   FILE EMBASE
       225   FILE ENCOMPLIT
       433   FILE ENCOMPPAT
      5073   FILE ENERGY
       349   FILE ENVIROENG
     98983   FILE EPFULL
     10668   FILE ESBIOBASE
       174   FILE FRANCEPAT
      1735   FILE FRFULL
       135   FILE FROSTI
       599   FILE FSTA
     22693   FILE GBFULL
       437   FILE GENBANK
       822   FILE GEOREF
        13   FILE HEALSAFE
        20   FILE IFICLS
    159440   FILE IFIPAT
         2   FILE INFODATA
      2962   FILE INIS
    184672   FILE INPADOCDB
    148176   FILE INPAFAMDB
     27412   FILE INSPEC
       472   FILE INSPHYS
        71   FILE IPA
         9   FILE ITRD
     95208   FILE JAPIO
     37212   FILE KOREAPAT
        32   FILE KOSMET
      9952   FILE LIFESCI
         3   FILE LISA
        27   FILE MATBUS
      1736   FILE MECHENG
     17833   FILE MEDLINE
      4540   FILE METADEX
         3   FILE NAPRALERT
      1722   FILE NLDB
      1565   FILE NTIS
      1707   FILE OCEAN
```

```
          19119   FILE PASCAL
             10   FILE PATDPA
           1890   FILE PATDPAFULL
          18407   FILE PCI
         128156   FILE PCTFULL
           2447   FILE PIRA
            352   FILE POLLUAB
           4703   FILE PROMT
           1124   FILE RAPRA
            611   FILE RDISCLOSURE
            191   FILE RUSSIAPAT
          37640   FILE SCISEARCH
           5239   FILE SOLIDSTATE
              4   FILE SOLIS
           8690   FILE TEMA
            154   FILE TEXTILETECH
           8175   FILE TOXCENTER
             41   FILE TRIBO
            665   FILE TULSA
             34   FILE TULSA2
             12   FILE UFORDAT
            136   FILE ULIDAT
           2097   FILE USGENE
         520568   FILE USPATFULL
           5382   FILE USPATOLD
         148078   FILE USPAT2
             16   FILE VETU
           1265   FILE WATER
            309   FILE WELDASEARCH
         149566   FILE WPIDS
            579   FILE WPIFV
         149566   FILE WPINDEX
            712   FILE WSCA
            298   FILE WTEXTILES
L6              QUE SPE=ON  ABB=ON  PLU=ON  SUBSTRAT? AND PATTER?
                ---------

     FILE 'WPIX' ENTERED AT 14:12:33 ON 08 JUN 2010
                E US20040191703/PN
L7            1 SEA SPE=ON  ABB=ON  PLU=ON  US20040191703/PN
                SEL L7 AU
L8           15 SEA SPE=ON  ABB=ON  PLU=ON  ("MCCARLEY R L"/IN OR "SOPER S
                A"/IN OR "VAIDYA B"/IN)
                SEL L7 PA
L9            7 SEA SPE=ON  ABB=ON  PLU=ON  ("MCCARLEY R L"/PA OR "SOPER S
                A"/PA OR "VAIDYA B"/PA)
L10             QUE SPE=ON  ABB=ON  PLU=ON  (SUBSTRAT?/BI,ABEX,BIEX OR
                SURFACE?/BI,ABEX,BIEX OR BASE#/BI,ABEX,BIEX OR SUBSTRUCT?/B
                I,ABEX,BIEX OR UNDERSTRUCT?/BI,ABEX,BIEX OR UNDERLAY?/BI,AB
                EX,BIEX OR FOUNDATION?/BI,ABEX,BIEX OR PANE?/BI,ABEX,BIEX
                OR DISK?/BI,ABEX,BIEX OR DISC#/BI,ABEX,BIEX OR WAFER?/BI,AB
                EX,BIEX)
L11     2047698 SEA SPE=ON  ABB=ON  PLU=ON  ACTINIC?/BI,ABEX,BIEX OR
                UV#/BI,ABEX,BIEX OR ULTRAVIOLET?/BI,ABEX,BIEX OR ULTRA/BI,A
                BEX,BIEX (2A) VIOLET?/BI,ABEX,BIEX OR LIGHT?/BI,ABEX,BIEX
                OR RADIAT?/BI,ABEX,BIEX OR IRRADIAT?/BI,ABEX,BIEX
L12             QUE SPE=ON  ABB=ON  PLU=ON  ?PATTERN?/BI,ABEX,BIEX OR
                MODIF?/BI,ABEX,BIEX OR CHANG?/BI,ABEX,BIEX OR ALTER?/BI,ABE
                X,BIEX
L13             QUE SPE=ON  ABB=ON  PLU=ON  POLYMER?/BI,ABEX,BIEX OR
```

```
                COPOLYMER?/BI,ABEX,BIEX OR HOMOPOLYMER?/BI,ABEX,BIEX OR
                TERPOLYMER?/BI,ABEX,BIEX OR POLYMER?/BI,ABEX,BIEX (2A)
                (CO/BI,ABEX,BIEX OR HOMO/BI,ABEX,BIEX OR TER/BI,ABEX,BIEX)
                OR RESIN?/BI,ABEX,BIEX
L14             QUE SPE=ON  ABB=ON  PLU=ON  ?OXIDIZ?/BI,ABEX,BIEX OR
                ?OXIDIS?/BI,ABEX,BIEX OR ?OXIDAT?/BI,ABEX,BIEX
L15      342509 SEA SPE=ON  ABB=ON  PLU=ON  ?ACRYLATE?/BI,ABEX,BIEX OR
                ?POLYIMIDE?/BI,ABEX,BIEX OR ?POLYCARBONATE?/BI,ABEX,BIEX
                OR ?POLYSULFONE?/BI,ABEX,BIEX OR ?POLYSULPHONE?/BI,ABEX,BIE
                X OR POLY/BI,ABEX,BIEX (2A) (CARBONATE?/BI,ABEX,BIEX OR
                SULFON?/BI,ABEX,BIEX OR SULPHON?/BI,ABEX,BIEX)
L16      346210 SEA SPE=ON  ABB=ON  PLU=ON  ?CARBOXYL?/BI,ABEX,BIEX
L17             QUE SPE=ON  ABB=ON  PLU=ON  ?REACT?/BI,ABEX,BIEX
L18             QUE SPE=ON  ABB=ON  PLU=ON  BIND/BI,ABEX,BIEX OR BINDS/BI,A
                BEX,BIEX OR BINDING?/BI,ABEX,BIEX OR BOUND?/BI,ABEX,BIEX
                OR ATTACH?/BI,ABEX,BIEX
L19             QUE SPE=ON  ABB=ON  PLU=ON  ?CYANATE?/BI,ABEX,BIEX OR
                ?AMIN?/BI,ABEX,BIEX OR ?IMIDE?/BI,ABEX,BIEX OR ?AZIDE?/BI,A
                BEX,BIEX OR AZO?/BI,ABEX,BIEX OR ?THIOL?/BI,ABEX,BIEX OR
                ?ANHYDRIDE?/BI,ABEX,BIEX OR ?THIONYL?/BI,ABEX,BIEX (2A)
                (HALIDE?/BI,ABEX,BIEX OR CHLORIDE?/BI,ABEX,BIEX OR
                BROMIDE?/BI,ABEX,BIEX OR FLUORIDE?/BI,ABEX,BIEX) OR
                CERAMIC?/BI,ABEX,BIEX OR PIEZOELEC?/BI,ABEX,BIEX OR
                SEMICOND?/BI,ABEX,BIEX OR SEMI/BI,ABEX,BIEX (2A) COND?/BI,A
                BEX,BIEX OR ?NUCLEOTID?/BI,ABEX,BIEX OR ANITBOD?/BI,ABEX,BI
                EX OR ANTIGEN?/BI,ABEX,BIEX OR ENZYM?/BI,ABEX,BIEX OR
                PEPTIDE?/BI,ABEX,BIEX OR PROTEIN?/BI,ABEX,BIEX

     FILE 'STNGUIDE' ENTERED AT 14:24:38 ON 08 JUN 2010

     FILE 'WPIX' ENTERED AT 14:26:23 ON 08 JUN 2010
L20     1141248 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
L21       46817 SEA SPE=ON  ABB=ON  PLU=ON  L20 AND L14
L22       14051 SEA SPE=ON  ABB=ON  PLU=ON  L21 AND L12
L23        2996 SEA SPE=ON  ABB=ON  PLU=ON  L22 AND L16
L24        1793 SEA SPE=ON  ABB=ON  PLU=ON  L23 AND L17
L25         541 SEA SPE=ON  ABB=ON  PLU=ON  L24 AND L18
L26         203 SEA SPE=ON  ABB=ON  PLU=ON  L25 AND L15
L27       73072 SEA SPE=ON  ABB=ON  PLU=ON  (A10-E01 OR G06-F03C OR
                G06-F03D)/MC
L28          38 SEA SPE=ON  ABB=ON  PLU=ON  L26 AND L27
L29        9658 SEA SPE=ON  ABB=ON  PLU=ON  U11-A06A/MC
L30           3 SEA SPE=ON  ABB=ON  PLU=ON  L26 AND L29
L31           5 SEA SPE=ON  ABB=ON  PLU=ON  L25 AND L29
L32          19 SEA SPE=ON  ABB=ON  PLU=ON  L24 AND L29
L33          54 SEA SPE=ON  ABB=ON  PLU=ON  L28 OR L30 OR L31 OR L32
L34           1 SEA SPE=ON  ABB=ON  PLU=ON  L33 AND (L8 OR L9)
L35           4 SEA SPE=ON  ABB=ON  PLU=ON  (L30 OR L31) NOT L34
L36           2 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L35
L37          16 SEA SPE=ON  ABB=ON  PLU=ON  L32 NOT (L34 OR L36)
L38          10 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L37
L39          36 SEA SPE=ON  ABB=ON  PLU=ON  L28 NOT (L38 OR L36 OR L34)
L40          21 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L39
L41       74845 SEA SPE=ON  ABB=ON  PLU=ON  L27 OR L29
L42       62184 SEA SPE=ON  ABB=ON  PLU=ON  L41 AND L13
L43       39314 SEA SPE=ON  ABB=ON  PLU=ON  L42 AND L10
L44       21627 SEA SPE=ON  ABB=ON  PLU=ON  L43 AND L12
L45       10738 SEA SPE=ON  ABB=ON  PLU=ON  L44 AND L11
L46         460 SEA SPE=ON  ABB=ON  PLU=ON  L45 AND L14
L47         138 SEA SPE=ON  ABB=ON  PLU=ON  L46 AND L16
```

```
L48          98 SEA SPE=ON  ABB=ON  PLU=ON  L47 AND L17
L49          34 SEA SPE=ON  ABB=ON  PLU=ON  L48 AND L18
L50           1 SEA SPE=ON  ABB=ON  PLU=ON  L49 AND (L8 OR L9)
L51           1 SEA SPE=ON  ABB=ON  PLU=ON  L50 OR L34
L52          23 SEA SPE=ON  ABB=ON  PLU=ON  L49 NOT (L40 OR L38 OR L36 OR
                L51)
L53           7 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L52


     FILE 'JAPIO, INSPEC, COMPENDEX, PASCAL, TEMA, SOLIDSTATE, CABA,
     DISSABS, EMA' ENTERED AT 15:00:46 ON 08 JUN 2010
     FILE 'JAPIO'
L54      483080 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'INSPEC'
L55      156425 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'COMPENDEX'
L56      351763 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'PASCAL'
L57      269878 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'TEMA'
L58       79194 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'SOLIDSTATE'
L59       29615 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'CABA'
L60       40246 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'DISSABS'
L61       26940 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'EMA'
L62       99282 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     TOTAL FOR ALL FILES
L63     1536423 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND L13
     FILE 'JAPIO'
L64       74299 SEA SPE=ON  ABB=ON  PLU=ON  L54 AND L12
     FILE 'INSPEC'
L65       46733 SEA SPE=ON  ABB=ON  PLU=ON  L55 AND L12
     FILE 'COMPENDEX'
L66      103637 SEA SPE=ON  ABB=ON  PLU=ON  L56 AND L12
     FILE 'PASCAL'
L67       80515 SEA SPE=ON  ABB=ON  PLU=ON  L57 AND L12
     FILE 'TEMA'
L68       27487 SEA SPE=ON  ABB=ON  PLU=ON  L58 AND L12
     FILE 'SOLIDSTATE'
L69       10064 SEA SPE=ON  ABB=ON  PLU=ON  L59 AND L12
     FILE 'CABA'
L70        9994 SEA SPE=ON  ABB=ON  PLU=ON  L60 AND L12
     FILE 'DISSABS'
L71       12929 SEA SPE=ON  ABB=ON  PLU=ON  L61 AND L12
     FILE 'EMA'
L72       28772 SEA SPE=ON  ABB=ON  PLU=ON  L62 AND L12
     TOTAL FOR ALL FILES
L73      394430 SEA SPE=ON  ABB=ON  PLU=ON  L63 AND L12
     FILE 'JAPIO'
L74        1451 SEA SPE=ON  ABB=ON  PLU=ON  L64 AND L14
     FILE 'INSPEC'
L75        2466 SEA SPE=ON  ABB=ON  PLU=ON  L65 AND L14
     FILE 'COMPENDEX'
L76        6529 SEA SPE=ON  ABB=ON  PLU=ON  L66 AND L14
     FILE 'PASCAL'
L77        5149 SEA SPE=ON  ABB=ON  PLU=ON  L67 AND L14
```

```
     FILE 'TEMA'
L78         1695 SEA SPE=ON  ABB=ON  PLU=ON  L68 AND L14
     FILE 'SOLIDSTATE'
L79          679 SEA SPE=ON  ABB=ON  PLU=ON  L69 AND L14
     FILE 'CABA'
L80          360 SEA SPE=ON  ABB=ON  PLU=ON  L70 AND L14
     FILE 'DISSABS'
L81         1136 SEA SPE=ON  ABB=ON  PLU=ON  L71 AND L14
     FILE 'EMA'
L82         1765 SEA SPE=ON  ABB=ON  PLU=ON  L72 AND L14
     TOTAL FOR ALL FILES
L83        21230 SEA SPE=ON  ABB=ON  PLU=ON  L73 AND L14
     FILE 'JAPIO'
L84          242 SEA SPE=ON  ABB=ON  PLU=ON  L74 AND L17
     FILE 'INSPEC'
L85          705 SEA SPE=ON  ABB=ON  PLU=ON  L75 AND L17
     FILE 'COMPENDEX'
L86         4924 SEA SPE=ON  ABB=ON  PLU=ON  L76 AND L17
     FILE 'PASCAL'
L87         2609 SEA SPE=ON  ABB=ON  PLU=ON  L77 AND L17
     FILE 'TEMA'
L88          553 SEA SPE=ON  ABB=ON  PLU=ON  L78 AND L17
     FILE 'SOLIDSTATE'
L89          212 SEA SPE=ON  ABB=ON  PLU=ON  L79 AND L17
     FILE 'CABA'
L90          173 SEA SPE=ON  ABB=ON  PLU=ON  L80 AND L17
     FILE 'DISSABS'
L91          608 SEA SPE=ON  ABB=ON  PLU=ON  L81 AND L17
     FILE 'EMA'
L92          595 SEA SPE=ON  ABB=ON  PLU=ON  L82 AND L17
     TOTAL FOR ALL FILES
L93        10621 SEA SPE=ON  ABB=ON  PLU=ON  L83 AND L17
     FILE 'JAPIO'
L94            5 SEA SPE=ON  ABB=ON  PLU=ON  L84 AND L18
     FILE 'INSPEC'
L95           71 SEA SPE=ON  ABB=ON  PLU=ON  L85 AND L18
     FILE 'COMPENDEX'
L96          452 SEA SPE=ON  ABB=ON  PLU=ON  L86 AND L18
     FILE 'PASCAL'
L97          252 SEA SPE=ON  ABB=ON  PLU=ON  L87 AND L18
     FILE 'TEMA'
L98           51 SEA SPE=ON  ABB=ON  PLU=ON  L88 AND L18
     FILE 'SOLIDSTATE'
L99           30 SEA SPE=ON  ABB=ON  PLU=ON  L89 AND L18
     FILE 'CABA'
L100          16 SEA SPE=ON  ABB=ON  PLU=ON  L90 AND L18
     FILE 'DISSABS'
L101         149 SEA SPE=ON  ABB=ON  PLU=ON  L91 AND L18
     FILE 'EMA'
L102          40 SEA SPE=ON  ABB=ON  PLU=ON  L92 AND L18
     TOTAL FOR ALL FILES
L103        1066 SEA SPE=ON  ABB=ON  PLU=ON  L93 AND L18
     FILE 'JAPIO'
L104           0 SEA SPE=ON  ABB=ON  PLU=ON  L94 AND L16
     FILE 'INSPEC'
L105          11 SEA SPE=ON  ABB=ON  PLU=ON  L95 AND L16
     FILE 'COMPENDEX'
L106          54 SEA SPE=ON  ABB=ON  PLU=ON  L96 AND L16
     FILE 'PASCAL'
L107          35 SEA SPE=ON  ABB=ON  PLU=ON  L97 AND L16
```

```
     FILE 'TEMA'
L108          9 SEA SPE=ON  ABB=ON  PLU=ON  L98 AND L16
     FILE 'SOLIDSTATE'
L109          2 SEA SPE=ON  ABB=ON  PLU=ON  L99 AND L16
     FILE 'CABA'
L110          0 SEA SPE=ON  ABB=ON  PLU=ON  L100 AND L16
     FILE 'DISSABS'
L111         23 SEA SPE=ON  ABB=ON  PLU=ON  L101 AND L16
     FILE 'EMA'
L112          6 SEA SPE=ON  ABB=ON  PLU=ON  L102 AND L16
     TOTAL FOR ALL FILES
L113        140 SEA SPE=ON  ABB=ON  PLU=ON  L103 AND L16
     FILE 'JAPIO'
L114          0 SEA SPE=ON  ABB=ON  PLU=ON  L104 AND L15
     FILE 'INSPEC'
L115          3 SEA SPE=ON  ABB=ON  PLU=ON  L105 AND L15
     FILE 'COMPENDEX'
L116          9 SEA SPE=ON  ABB=ON  PLU=ON  L106 AND L15
     FILE 'PASCAL'
L117          3 SEA SPE=ON  ABB=ON  PLU=ON  L107 AND L15
     FILE 'TEMA'
L118          2 SEA SPE=ON  ABB=ON  PLU=ON  L108 AND L15
     FILE 'SOLIDSTATE'
L119          0 SEA SPE=ON  ABB=ON  PLU=ON  L109 AND L15
     FILE 'CABA'
L120          0 SEA SPE=ON  ABB=ON  PLU=ON  L110 AND L15
     FILE 'DISSABS'
L121          3 SEA SPE=ON  ABB=ON  PLU=ON  L111 AND L15
     FILE 'EMA'
L122          1 SEA SPE=ON  ABB=ON  PLU=ON  L112 AND L15
     TOTAL FOR ALL FILES
L123         21 SEA SPE=ON  ABB=ON  PLU=ON  L113 AND L15
     FILE 'JAPIO'
L124          0 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L114
     FILE 'INSPEC'
L125          2 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L115
     FILE 'COMPENDEX'
L126          2 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L116
     FILE 'PASCAL'
L127          2 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L117
     FILE 'TEMA'
L128          1 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L118
     FILE 'SOLIDSTATE'
L129          0 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L119
     FILE 'CABA'
L130          0 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L120
     FILE 'DISSABS'
L131          2 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L121
     FILE 'EMA'
L132          1 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L122
     TOTAL FOR ALL FILES
L133         10 SEA SPE=ON  ABB=ON  PLU=ON  1808-2003/PY,PRY,AY AND L123
L134          7 DUP REM L133 (3 DUPLICATES REMOVED)
                    ANSWERS '1-2' FROM FILE INSPEC
                    ANSWER '3' FROM FILE COMPENDEX
                    ANSWER '4' FROM FILE PASCAL
                    ANSWERS '5-6' FROM FILE DISSABS
                    ANSWER '7' FROM FILE EMA

     FILE 'INSPEC, COMPENDEX, PASCAL, DISSABS, EMA' ENTERED AT 15:10:28 ON
```

```
     08 JUN 2010
     FILE 'INSPEC'
L135          2 SEA L134
     FILE 'COMPENDEX'
L136          1 SEA L134
     FILE 'PASCAL'
L137          1 SEA L134
     FILE 'DISSABS'
L138          2 SEA L134
     FILE 'EMA'
L139          1 SEA L134
     TOTAL FOR ALL FILES
L140          7 SEA SPE=ON  ABB=ON  PLU=ON  L134


     FILE 'WPIX' ENTERED AT 15:10:53 ON 08 JUN 2010

=> D L51 1 IFULL

L51  ANSWER 1 OF 1  WPIX COPYRIGHT 2010       THOMSON REUTERS on STN
ACCESSION NUMBER:      2004-782213 [200477]   WPIX
DOC. NO. CPI:          C2004-273888 [200477]
DOC. NO. NON-CPI:      N2004-616231 [200477]
TITLE:                 Direct photochemical modification and
                       micropatterning of polymer
                       surfaces, by selectively exposing
                       polymer in oxidizing atmosphere to
                       actinic light and reacting
                       resulting bound carboxyl groups
                       with reactants
DERWENT CLASS:         A89; B04; D16; G06; L03; P83; U11
INVENTOR:              MCCARLEY R L; SOPER S A;
                       VAIDYA B
PATENT ASSIGNEE:       (MCCA-I) MCCARLEY R L; (SOPE-I) SOPER
                       S A; (VAID-I) VAIDYA B
COUNTRY COUNT:         1

PATENT INFORMATION:

      PATENT NO      KIND DATE     WEEK     LA  PG          MAIN IPC
      ------------------------------------------------------------------
      US 20040191703  A1 20040930 (200477)* EN  24[9]

APPLICATION DETAILS:

      PATENT NO      KIND                 APPLICATION    DATE
      ------------------------------------------------------------------
      US 20040191703 A1 Provisional       US 2003-458319P 20030327
      US 20040191703 A1                   US 2003-734816 20031212

PRIORITY APPLN. INFO: US 2003-734816       20031212
                      US 2003-458319P      20030327
INT. PATENT CLASSIF.:
 IPC RECLASSIF.:       G01N0021-77 [I,A]; G01N0021-77 [I,C]
ECLA:                  G01N0021-77B; G03F0007-16L; G03F0007-26; G03F0007-40
ICO:                   S03F0007:039
USCLASS NCLM:          430/324.000
BASIC ABSTRACT:
      US 20040191703 A1   UPAB: 20050707
```

NOVELTY - Direct photochemical modification and micropatterning of polymer surfaces comprising selectively exposing a polymer in an oxidizing atmosphere to actinic light, and reacting the resulting, bound carboxyl groups with reactants, to impart chemical functionality to exposed portions of the polymer surface different from carboxyl functionality, is new.

DETAILED DESCRIPTION - A process (M1) for direct photochemical modification and micropatterning of polymer surfaces, involves:

(a) selectively exposing a polymer in an oxidizing atmosphere to actinic light, where:

(i) the polymer comprises a polymeric or copolymeric composition containing one or more functionalities that will photooxidize to carboxylic groups that remain bound to the polymer, when the polymer is exposed to actinic light in an oxidizing atmosphere; (ii) the light selectively exposes portions of the surface of the polymer in accordance with a pre-determined pattern, while not exposing the remaining portions of the surface to substantial light; (iii) the fluence of light in the exposed portions of the surface suffices to induce photoxidation of polymer on or near the surface, sufficient to generate substantial quantities of carboxyl groups that remain bound to the polymer, but insufficient to cause substantial photoblation of polymer in the exposed portions;

(iv) the fluence of light in the unexposed portions of the surface is zero, or is insufficient to induce the generation of substantial quantity of carboxyl groups, that remain bound to the polymer; and

(v) the surface of the polymer is essentially free of any photoresist that is responsive to the actinic light at the fluence in the exposed portions of the surface, and

(b) reacting the resulting, bound carboxyl groups with one or more reactants, to impart chemical functionality to the exposed portions of the polymer surface different from carboxyl functionality, while not imparting substantially amounts of the same type of chemical functionality to the unexposed portions of the polymer surface.

INDEPENDENT CLAIMS are also included for: (1) a product (I) of (M1); and (2) a composition (II) comprising a polymer substrate, carboxyl or carbonyl groups selectively bound, in a predetermined pattern, on or near the surface of the polymer substrate, and chemical functionality that is different from carboxyl and carbonyl functionality and that is bound to the carboxyl or carbonyl groups, but that is not bound in substantial amounts to the portions of the polymer surface lacking substantial amounts of the carboxyl or carbonyl groups.

USE - (M1) is useful for direct photochemical modification and micropatterning of polymer surfaces (claimed), without the need to use a photoresist. (M1) is useful for forming micropatterns of various functional chemical groups, biomolecules and metal films on poly(carbonate) and poly(methyl methacrylate) surfaces. The patterns formed by (M1), is useful in integrated electronics, capture elements or sensing elements in micro-fluidic channels.

ADVANTAGE - (M1) minimizes detrimental side reactions such as loss of mass, loss of thickness, and photoablation by controlling process parameters such as wavelength, exposure intensity, and exposure time. (M1) does not require the use of a photoresist.

TECHNOLOGY FOCUS:

BIOTECHNOLOGY - Preferred Method: In (M1), the actinic light comprises ultraviolet light, deep ultraviolet light, near ultraviolet light, or visible light. The fluence of light in the exposed portions of the surface suffices to generate at least about 10(12) moles per cm2 of carboxyl groups that remain bound to the polymer, where the fluence of light in the exposed portions of the surface is insufficient to cause photoablation of polymer deeper than about 250 nm, and the

fluence of light in the unexposed portions of the surface is zero, or is sufficient to induce the generation of not more than about 5x10(−13) moles per cm2 of carboxyl groups that remain bound to the polymer. (M1) additionally comprises the step of reacting the chemical functionality with the reduced or oxidized metal to bind the metal to the functionality. The reduced or oxidized metal is chosen from copper, nickel, gold, silver, platinum, and palladium. The chemical functionality comprises at least one nitrogen, oxygen, or sulfur atom having a lone pair of electrons, and (M1) additionally comprises the step of coordinating at least one reduced or oxidized metal atom to the nitrogen, oxygen, or sulfur atom's lone pair of electrons, or comprises the sequential steps of coordinating at least one oxidized metal atom to the nitrogen, oxygen, or sulfur atoms, lone pair of electrons, and reducing the coordinated metal atom in situ, thus the reduced metal is selectively bound to the exposed portions of the polymer surface. (M1) additionally comprises the step of forming a second polymer bound to the first polymer in situ by reaction of monomer with the bound initiator or bound monomer and binding one or more whole, respiring cells to the chemical functionality on the polymer.

Preferred Reactant: In (M1), the one or more reactants are chosen from oligonucleotides, antibodies, antigen-binding portions of antibodies, antigens, enzymes, non-enzymatic peptides, and non-enzymatic proteins. The reactants comprise a reduced or oxidized metal. The one or more reactants are optionally chosen from metal oxides, ceramics, piezoelectric materials, and semiconductors or amines, imides, azides, azo compounds, cyanates, alcohols, thiols, anhydrides, and thionyl halides. The one or more reactants comprise a second polymer or a polymer initiator or a monomer.

Preferred Composition: In (II), within the predetermined pattern, the total concentration of bound carboxyl and carbonyl is at least about 10(−12) moles per cm2, where the predetermined pattern containing the bound carboxyl or carbonyl is not ablated more the about 250 nm compared to the immediately surrounding portions of the surface outside the pattern, and the total concentration of bound carboxyl and carbonyl is not more than about 5x10(−13) moles per cm2. The chemical functionality is chosen from oligonucleotides, antibodies, antigen-binding portions of antibodies, antigens, enzymes, non-enzymatic peptides, and non-enzymatic proteins. The chemical functionality comprises a reduced or oxidized metal chosen from copper, nickel, gold, silver, platinum, and palladium and comprises at least one nitrogen, oxygen, or sulfur atom having a lone pair of electrons, and at least one reduced metal atom coordinated to the nitrogen, oxygen, or sulfur atom's lone pair of electrons. The chemical functionality is optionally chosen from metal oxides, ceramics, piezoelectric materials, and semiconductors or amides, imides, azides, azo compounds, cyanates, esters, thiol esters, anhydrides, and carboxylic acid halides. The chemical functionality comprises a second polymer and one or more whole, respiring cells bound to the chemical functionality. The pattern comprises a DNA microarray, an antibody microarray, or an antigen microarray, or optionally comprises a

three-dimensional microstructure or microfluidic device.
POLYMERS - Preferred Polymer: The polymer is chosen from acrylate polymers, aromatic polymers, polyimides, polycarbonates, and polysulfones, preferably polysulfone or poly(methyl methacrylate).

EXTENSION ABSTRACT:
EXAMPLE - Poly(methyl methacrylate) (PMMA) sheets (20 mmx20 mmx1.0 mm) were cut, the manufacture's protective films were removed, and the surfaces were rinsed with isopropanol and double distilled (dd) H2O. On some of the slides, a central spot, 0.5 cm diameter, was exposed to broadband ultraviolet (UV) light (15 mW/cm2) for 30 minutes, while other slides were left unexposed. The slides were then rinsed again with isopropanol and ddH2O, and were dried with compressed air. A 5'-terminal 6C amino modified oligonucleotide was dissolved in 0.5 M 1-ethyl-3-(3-dimethyl-aminopropyl)carbodiimide (EDC), 100 mM MES buffer to prepare a 10 microM oligonucleotide solution. Then, 20 microl of the prepared oligonucleotide solution was spotted onto the centers of both a UV-treated PMMA slide, and of an otherwise identical PMMA slide that had not been exposed to UV light. The slides were incubated at 37 degrees Centigrade overnight. The slides were then washed with ddH2O, and dried. They were then hybridized in 10 mM M13 IRD 800 dye-labeled complementary sequence oligonucleotide solution at 60 degrees Centigrade for one hour. The hybridized slides were then washed twice with 2x SSPE and 0.1% sodium dodecyl sulfate (SDS). Under an infrared scanner, the untreated slide showed no hybridization signal, while the treated slide showed a strong fluorescence signal in the area of the treated spot having a signal about 10 times stronger that the background signal from the untreated PMMA.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A10-E01; A12-E07C; A12-L02B2;
B04-B03C; B04-B04C; B04-C03; B04-G01; B04-L01;
B04-N04; B05-A03A; B05-A03B; B11-C08E6; D05-H09;
G06-D06; G06-F03C; G06-F03D;
L03-D01D; L03-J
EPI: U11-A06A

=> D L36 1-2 IFULL

L36 ANSWER 1 OF 2 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2004-402670 [200438] WPIX
DOC. NO. CPI: C2005-130776 [200544]
DOC. NO. NON-CPI: N2005-345337 [200544]
TITLE: New hydroxy ester functionalized copolymers useful as photoresist for semiconductor devices
DERWENT CLASS: A14; A89; G06; L03; P83; P84; U11
INVENTOR: FARNHAM W B; FEIRING A E; FEIRING A L; QIU W; SCHADT F; SCHADT F L
PATENT ASSIGNEE: (DUPO-C) DU PONT DE NEMOURS & CO E I; (FARN-I) FARNHAM W B; (FEIR-I) FEIRING A E; (QIUW-I) QIU W; (SCHA-I) SCHADT F L; (DUPO-C) DU PONT DE NEMOURS&CO E I
COUNTRY COUNT: 35

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 1411389	A1	20040421	(200438)*	EN	25[0]	
US 20040126697	A1	20040701	(200444)	EN		
KR 2004031635	A	20040413	(200452)	KO		

JP 2004280049	A	20041007 (200466)	JA	64
TW 2004017818	A	20040916 (200607)	ZH	
US 7022457	B2	20060404 (200624)	EN	
JP 4261303	B2	20090430 (200930)	JA	29

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1411389 A1		EP 2003-256267	20031003
US 20040126697 A1	Provisional	US 2002-415855P	20021003
US 7022457 B2	Provisional	US 2002-415855P	20021003
US 20040126697 A1		US 2003-669492	20030924
US 7022457 B2		US 2003-669492	20030924
KR 2004031635 A		KR 2003-68857	20031002
JP 2004280049 A		JP 2003-346258	20031003
TW 2004017818 A		TW 2003-127441	20031003
JP 4261303 B2		JP 2003-346258	20031003

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 4261303	B2 Previous Publ	JP 2004280049 A

PRIORITY APPLN. INFO: US 2002-415855P 20021003
US 2003-669492 20030924
US 2002-415855P 20021003

INT. PATENT CLASSIF.:

MAIN:	G03F0007-027; G03F0007-039
IPC ORIGINAL:	G03C0001-73 [I,A]; G03C0001-73 [I,C]; G03C0001-76 [I,A]; G03C0001-76 [I,C]; G03F0007-027 [I,A]; G03F0007-027 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-039 [I,A]; G03F0007-039 [I,A]; G03F0007-039 [I,C]; G03F0007-039 [I,C]; G03F0007-039 [I,C]; G03F0007-30 [I,A]; G03F0007-30 [I,C]; H01L0021-02 [I,C]; H01L0021-027 [I,A]
IPC RECLASSIF.:	C08F0020-00 [I,C]; C08F0020-26 [I,A]; G03C0001-73 [I,A]; G03C0001-73 [I,C]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-038 [I,C]; G03F0007-039 [I,A]; G03F0007-039 [I,C]; G03F0007-20 [I,A]; G03F0007-20 [I,C]; G03F0007-30 [I,A]; G03F0007-30 [I,C]; H01L0021-02 [I,C]; H01L0021-027 [I,A]
ECLA:	G03F0007-004F; G03F0007-039C1; G03F0007-039C1S
USCLASS NCLM:	430/270.100
NCLS:	430/271.100; 430/272.100; 430/280.100; 430/325.000; 430/326.000; 430/905.000; 430/907.000; 430/910.000; 430/914.000; 526/242.000; 526/247.000; 526/249.000; 526/250.000; 526/253.000; 526/254.000; 526/255.000; 526/280.000; 526/281.000; 526/320.000

JAP. PATENT CLASSIF.:

MAIN/SEC.:	C08F0020-26; G03F0007-038 601; G03F0007-039 601; H01L0021-30 502 R
MAIN:	G03F0007-039 601
SECONDARY:	H01L0021-30 502 R
FTERM CLASSIF.:	2H025; 2H125; 4J100; 5F046; 2H025/AB16; 2H025/AC04; 4J100/AC23.Q; 4J100/AC24.Q; 4J100/AC25.Q; 4J100/AC26.Q; 4J100/AC27.Q; 4J100/AC31.Q; 2H025/AD01;

2H025/AD03; 4J100/AE09.R; 4J100/AE39.Q; 4J100/AG08.R;
4J100/AJ02.S; 4J100/AL03.S; 4J100/AL08.S;
4J100/AL09.P; 4J100/AL09.S; 4J100/AL10.S;
4J100/AR09.R; 4J100/AR11.R; 4J100/BA02.R;
4J100/BA02.S; 4J100/BA03.R; 4J100/BA10.R;
4J100/BA20.R; 4J100/BA40.S; 4J100/BB07.R;
4J100/BB12.R; 4J100/BC08.S; 4J100/BC09.R;
4J100/BC09.S; 2H025/BE00; 2H025/BG00; 4J100/CA06;
2H025/CC03; 2H025/CC04; 2H025/CC20; 4J100/DA04;
4J100/DA25; 2H025/FA03; 2H025/FA12; 2H025/FA17;
4J100/JA38

BASIC ABSTRACT:

EP 1411389 A1 UPAB: 20090514

NOVELTY - New copolymers comprising repeating units derived from a hydroxy ester containing monomer, polycyclic ethylenically unsaturated compound and ethylenically unsaturated compound containing fluorine with at least one fluorine atom covalently attached to an ethylenically unsaturated carbon atom.

DETAILED DESCRIPTION - New copolymers comprising repeating units derived from a hydroxy ester containing monomer of formula -CO2-C(R1)(R2)-(C(R3)(R4))n-(R5)(R6)-OH (I), polycyclic ethylenically unsaturated compound (p1) and ethylenically unsaturated compound (p2) containing fluorine with at least one fluorine atom covalently attached to an ethylenically unsaturated carbon atom.

n = 0 - 5;

R1 and R2 = 1-6C alkyl (optionally substituted with an ether or oxygen);

R1+R2, R3+R4 and R5+R6 = 3 - 8 membered ring (optionally substituted with an ether or oxygen); R3, R4, R5 and R6 = H, 1-6C alkyl (optionally substituted with an ether or oxygen); and

R1+R5 = 4 - 8 membered ring. Provided that carbon atom attached to R1 and R2 is not at a bridgehead position. INDEPENDENT CLAIMS are included for the following

(1) a photoresist (R1) comprising either a hydroxy ester functionalized polymer (A) containing group (I) or a polymer derived from a repeating unit of formula H2C=C(X)-CO2-C(R1)(R2)-(C(R3)(R4))n-C(R5)(R6)-OH and a photoactive component; and

(2) preparation of photoresist image on a substrate involving coating the substrate with a photoresist composition comprising a polymer containing repeating units of formula (I), at least one photoactive component and a solvent; drying the coated composition to remove the solvent to form a layer; imagewise exposing the layer to form imaged and non-imaged area (a1) and developing the exposed layer with (a1) to form the relief image on the substrate.

X = H, 1-6C alkyl (optionally substituted by F) or F.

USE - For coating substrate materials like silicon, silicon oxide, silicon oxynitride or silicon nitride (claimed) useful as photoresists in semiconductor devices.

ADVANTAGE - The photoresist composition has good balance of desirable properties including high transparency to extreme, far and near ultraviolet light, high plasma etch resistance and projected high resolution characteristics suitable for microelectronics device fabrication using 0.18 and 0.13 mum and below rules. The photoresist composition in particular has good optical transparency at 193 and 157 nm. The copolymers have good properties including high transparency at 193 and 157 nm and other wavelengths in the UV. TECHNOLOGY FOCUS:

ORGANIC CHEMISTRY - Preferred components: (p2) Is tetrafluoroethylene, chlorotriflouroethylene, hexafluoropropylene, triflouroethylene, vinylidene fluoride, vinyl fluoride, perfluro-(2,2-dimethyl-1,3-dioxole), perfluro-(2-methylene-4-methyl-1,3-dioxole), CF2=CFO(CF2)tCF=CF2 or RfOCF=CF2 (preferably tetrafluoroethylene). (p1) Is norbornene, 5-norbornene-2-tert-butyl carboxylate, 2-hydroxy-5-norbornene, 2-methoxycarbonyl-5-norbornene,

2-(2,2-bis(trifluoromethyl)-2-hydroxy)ethyl-5-norbornene, 2-(2,2-bis(trifluoromethyl)-2-hydroxy)ethoxy-5-norbornene, 1-acryloxy-adamantane, 1-acryloxymethyl-adamantane, adamantanesacrylate , tricyclo(4.2.1.0(2.5))non-7-ene, 3,3,4,4-tetrafluoro tricyclo(4.2.1.0(2.5))non-7-ene, 3-tert-butyloxycarbonyl tricyclo(4.2.1.0(2.5))non-7-ene, 3-tert-butyloxycarbonyl-3-fluor-tricyclo(4.2.1.0(2.5))non-7-ene or group of formula (IIa) and (IIb) (preferably 2-(2,2-bis(trifluoromethyl)-2-hydroxy)ethoxy-5-norbornene).

Preferred Composition: (R1) further comprises photoacid generator, dissolution inhibitor, solvent (S1), bases, surfactant, resolution enhancers, adhesion promoters, residue reducers, coating aids, plasticizers and glass transition temperature modifiers.

POLYMERS - Preferred Components: (A) further comprises fluoroalcohol group, a protected fluoroalcohol group derived from at least one ethylenically unsaturated compound containing fluoroalcohol group of structure -C(Rf)(R'f)OH and repeating units derived from monomers including acrylic acid, methyl acrylate, ethyl acrylate, propyl acrylate, tert-butyl acrylate, 2-methyl-2-admantyl acrylate, 2-methyl-2-norbornyl acrylate, 2-methoxyethyl acrylate, 2-hydroxyetyl acrylate, 2-cyanoethyl acrylate, glycidyl acrylate, 2,2,2-trifluoroethyl acrylate or corresponding methacrylate monomer (preferably tert-butyl acrylate or 2-methyl-2-admantyl acrylate).(I) is 2-propenoic acid, 2-hydroxy-1,1,2-trimethylpropyl ester or 2-methyl-2-propenoic acid 2-hydroxy-1,1,2-trimethylpropyl ester.

Rf and R'f = 1-10C fluoroalkyl (preferably CF3);
Rf+R'f = (CF2)m;
m = 2 - 10; and
t = 1 or 2.

EXTENSION ABSTRACT:

EXAMPLE - 5-norbornene-2-ethoxy(2-bistrifluoromethyl-2- hydroxy(NB-F-OH) (78.3 g) was charged with 2-methyl-2-adamantyl acrylate (MadA)(5.28g), 2-propenoic acid, 2-hydroxy-1,1,2-trimethylpropyl ester (PinAc) (1.03 g), tetrahydrofuran chain transfer reagent (7.2 g) and Solkane 365 mfc (RTM; 1,1,1,3,3-pentafluorobutane)(35 ml) and the reaction mixture was cooled to -15degreesC and pressurized to 400 psi with nitrogen. The contents were heated to 50degreesc and tetrafluoroethylene (TFE) was added and the pressure was maintained to 270 psi till polymerization. A solution of NB-F-OH (58 g) MadA(38.13 g), PinAc(7.45 g) and Solkane 365 mfc(100 ml) was again pumped into the reactor at a rate of 0.01 ml/minute for 12 hours. With this a 16N solution of Perkadox (RTM; di-(4-tert-butylcyclohexyl)peroxydicarbonate)(7.3 g) and methyl acetate (60 ml) were pumped into the reactor at a rate of 2ml/minute for 60 minutes. After 16 hours the solution was cooled to room temperature and pressure was reduced to 1 atmosphere. The polymer solution was added to hexane with stirring. The precipitate was filtered and washed to give poly(TFE-co-NB-F-OH-co-MadA-co-PinAc) (54.6 g).

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A04-F06E4; A11-B05D; A12-E07C; A12-L02B2; G06-D06; G06-F03C; G06-F03D; G06-G17; G06-G18; L04-C05
EPI: U11-A06A

L36 ANSWER 2 OF 2 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1999-550757 [199946] WPIX
DOC. NO. CPI: C1999-160596 [199946]
DOC. NO. NON-CPI: N1999-407542 [199946]

TITLE: Polycyclic polymers used in chemically amplified positive and negative resist compositions for manufacturing integrated circuits

DERWENT CLASS: A14; A17; A26; A60; A85; A89; E19; G06; L03; P84; U11

INVENTOR: ALLEN R D; GOODALL B L; JAYARAMAN S; OPITZ J; RHODES L F; SHICK R A; SOORIYAKUMARAN R; VICARI R; WALLOW T; GOODDALL B L

PATENT ASSIGNEE: (GOOR-C) GOODRICH CO B F; (GOOR-C) GOODRICH CORP; (IBMC-C) INT BUSINESS MACHINES CORP; (SUMB-C) SUMITOMO BAKELITE CO LTD; (IBMC-C) IBM CORP

COUNTRY COUNT: 79

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9942502	A1	19990826	(199946)*	EN	66	[0]
<--						
AU 9933035	A	19990906	(200003)	EN		
<--						
US 6147177	A	20001114	(200060)	EN		
<--						
EP 1058699	A1	20001213	(200066)	EN		
<--						
CN 1292002	A	20010418	(200141)	ZH		
<--						
KR 2001041216	A	20010515	(200167)	KO		
<--						
JP 2002504573	W	20020212	(200215)	JA	70	
<--						
US 6451499	B1	20020917	(200264)	EN		
<--						
CN 1223615	C	20051019	(200661)	ZH		
KR 617354	B1	20060831	(200714)	KO		
TW 250384	B1	20060301	(200717)	ZH		
EP 2045275	A2	20090408	(200926)	EN		
EP 2045275	A3	20090729	(200951)	EN		
JP 2009235414	A	20091015	(200968)	JA	46	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9942502	A1	WO 1999-US3632	19990219
US 6147177	A Provisional	US 1998-75557P	19980223
US 6451499	B1 Provisional	US 1998-75557P	19980223
AU 9933035	A	AU 1999-33035	19990219
CN 1292002	A	CN 1999-803249	19990219
CN 1223615	C	CN 1999-803249	19990219
EP 1058699	A1	EP 1999-934291	19990219
US 6147177	A	US 1999-253497	19990219
US 6451499	B1 Div Ex	US 1999-253497	19990219
EP 1058699	A1	WO 1999-US3632	19990219
JP 2002504573	W	WO 1999-US3632	19990219
KR 617354	B1	WO 1999-US3632	19990219
TW 250384	B1	TW 1999-102554	19990222
EP 2045275	A2 Div Ex	EP 1999-934291	19990223
EP 2045275	A3 Div Ex	EP 1999-934291	19990223
JP 2002504573	W	JP 2000-532454	19990219
US 6451499	B1	US 2000-604749	20000627

KR 2001041216 A		KR 2000-709301	20000823
KR 617354 B1		KR 2000-709301	20000823
EP 2045275 A2		EP 2008-170128	19990219
EP 2045275 A3		EP 2008-170128	19990219
JP 2009235414 A	Div Ex	JP 2000-532454	19990219
JP 2009235414 A		JP 2009-138295	20090609

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 2045275	A2	Div Ex	EP 1058699	A
KR 617354	B1	Previous Publ	KR 2001041216	A
US 6451499	B1	Div ex	US 6147177	A
AU 9933035	A	Based on	WO 9942502	A
EP 1058699	A1	Based on	WO 9942502	A
JP 2002504573	W	Based on	WO 9942502	A
KR 617354	B1	Based on	WO 9942502	A
EP 2045275	A3	Div Ex	EP 1058699	A

PRIORITY APPLN. INFO: US 1998-75557P 19980223
US 1999-253497 19990219
US 2000-604749 20000627

INT. PATENT CLASSIF.:

MAIN:	C08F0032-08; G03F0007-039
IPC ORIGINAL:	C08F0232-00 [I,A]; C08F0232-00 [I,C]; C08F0232-00 [I,C]; C08F0232-00 [I,C]; C08F0232-08 [I,A]; C08F0032-00 [I,C]; C08F0032-00 [I,C]; C08F0032-08 [I,A]; C08G0061-00 [I,C]; C08G0061-00 [I,C]; C08G0061-08 [I,A]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-004 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-039 [I,A]; G03F0007-039 [I,C]; G03F0007-039 [I,C]
IPC RECLASSIF.:	C08F0232-00 [I,C]; C08F0232-08 [I,A]; C08F0032-00 [I,C]; C08F0032-08 [I,A]; C08F0004-00 [I,C]; C08F0004-80 [I,A]; C08G0061-00 [I,C]; C08G0061-06 [I,A]; C08G0061-08 [I,A]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-039 [I,A]; G03F0007-039 [I,C]
ECLA:	C08G0061-08; G03F0007-004D; G03F0007-038C; G03F0007-039
ICO:	S03F0007:004D
USCLASS NCLM:	526/281.000
NCLS:	526/172.000; 526/259.000; 526/270.000; 526/283.000; 526/286.000; 526/308.000; 526/313.000; 526/326.000; 526/332.000; 526/333.000; 526/334.000

JAP. PATENT CLASSIF.:

MAIN/SEC.:	C08F0232-00; C08F0232-08; C08F0032-08; C08F0004-80; C08G0061-06; G03F0007-004 501; G03F0007-004 503 A; G03F0007-038 601; G03F0007-039 601
MAIN:	C08F0232-00
SECONDARY:	G03F0007-038 601; G03F0007-039 601
FTERM CLASSIF.:	2H025; 2H125; 4J015; 4J032; 4J100; 2H025/AA02; 2H025/AA03; 2H025/AA09; 2H025/AB16; 2H025/AC04; 2H025/AC08; 2H025/AD01; 2H025/AD03; 2H125/AE02.P; 2H125/AF17.P; 2H125/AF27.P; 2H125/AF35.P; 2H125/AF36.P; 2H125/AJ25.X; 2H125/AJ87.X; 2H125/AN39.P; 4J100/AR09.P; 4J100/AR09.Q; 4J100/AR09.R; 4J100/AR09.S; 4J100/AR11.P; 4J100/AR11.Q; 4J100/AR11.R; 4J100/AR11.S;

4J100/BA02.P; 4J100/BA02.Q; 4J100/BA02.R;
4J100/BA03.P; 4J100/BA04.P; 4J100/BA04.Q;
4J100/BA04.R; 4J100/BA05.P; 4J100/BA05.Q;
4J100/BA05.R; 4J100/BA06.P; 4J100/BA06.Q;
4J100/BA06.R; 4J100/BA08.Q; 4J100/BA08.R;
4J100/BA10.Q; 4J100/BA10.R; 4J100/BA11.R;
4J100/BA13.Q; 4J100/BA14.P; 4J100/BA14.Q;
4J100/BA14.R; 4J100/BA15.P; 4J100/BA15.Q;
4J100/BA15.R; 4J100/BA16.P; 4J100/BA16.Q;
4J100/BA20.P; 4J100/BA20.Q; 4J100/BA20.R;
4J100/BA22.P; 4J100/BA22.Q; 4J100/BA22.R;
4J100/BA34.P; 4J100/BA35.P; 4J100/BA40.P;
4J100/BB01.P; 4J100/BB03.P; 4J100/BB05.P;
4J100/BB07.P; 4J100/BC02.Q; 4J100/BC02.R;
4J100/BC03.Q; 4J100/BC03.R; 4J100/BC04.Q;
4J100/BC04.R; 4J100/BC07.Q; 4J100/BC08.Q;
4J100/BC09.Q; 4J100/BC43.P; 4J100/BC43.Q;
4J100/BC44.P; 4J100/BC48.P; 4J100/BC49.P;
4J100/BC53.P; 4J100/BC53.Q; 4J100/BC53.R;
4J100/BC58.Q; 4J100/BC58.R; 4J100/BC66.P; 2H025/BE00;
2H025/BJ10; 4J100/CA04; 4J100/CA05; 2H125/CA12;
4J032/CA32; 4J032/CA34; 4J032/CB03; 2H125/CB07;
2H025/CB08; 2H025/CB10; 2H025/CB41; 2H025/CB45;
2H125/CC01; 2H125/CC03; 4J032/CC03; 2H125/CC15;
2H025/CC17; 2H125/CC17; 2H025/CC20; 4J032/CD01;
4J032/CF01; 4J032/CG00; 4J100/DA01; 4J100/DA04;
4J015/DA09; 4J100/FA08; 4J100/JA38

BASIC ABSTRACT:

WO 1999042502 A1 UPAB: 20090430

NOVELTY - Polycyclic polymers used in photoresist compositions are polymerized from monomers of specified structure containing pendent aromatic groups and, optionally, one or more of (i) pendent acid-labile groups, (ii) pendent neutral or polar groups and (iii) pendent hydrocarbyl groups.

DETAILED DESCRIPTION - A cyclic polymer is polymerized from a monomer composition containing: (a) one or more polycyclic monomers with pendent aromatic groups; and

(b) optionally, one or more polycyclic monomers with; (i) pendent acid-labile groups; (ii) pendent neutral or polar groups; (iii) pendent hydrocarbyl groups; or (iv) a combination,

such that monomers (a) have the formula (I): m = integer 0 - 5;

R1 - R4 = H or -(CH2)nC(O)OR, provided at least one group aromatic-containing, or R1 and R4, together with the 2 ring carbon atoms to which they are attached, can form either a 6 - 14C substituted aromatic group or a 5-membered heterocyclic group containing at least one substituted heteroatom; and R = H or 1 - 10C alkyl.

The monomers (b,i) with acid-labile groups have the formula (II); the monomers (b,ii) with neutral or polar groups have the formula (III); and the monomers (b,iii) with hydrocarbyl groups have the formula (IV):

R5 - R8 = groups comprising divalent hydrocarbon, cycloaliphatic, alkylene ether or polyether spacers groups and ether or carboxylic ester groups, provided at least one of R5 - R8 contains an acid-labile group;

R9 - R12 = H, 1 - 10C alkyl, or groups comprising spacer groups as above and ether or carboxylic ester groups, or R9 and R12, together with the ring carbon atoms to which they are attached, may form a cyclic anhydride group; and R13 - R16 = H or 1 - 10C alkyl. An INDEPENDENT CLAIM is also included for a photoresist composition comprising a photo acid initiator, an optional dissolution inhibitor and a polymer polymerized from polycyclic monomers containing pendent aromatic groups as above and, optionally, polycyclic monomers containing pendent acid-labile groups.

USE - Particularly in chemically amplified positive and negative working resists (photoresist compositions claimed) used in manufacturing integrated circuits.

ADVANTAGE - The polymers show high transparency to deep UV wavelengths, which makes them suitable for high-resolution photolithography applications and they provide resist films with excellent resistance to reactive ion etching. TECHNOLOGY FOCUS:

POLYMERS - Preparation: The monomers may be polymerized by ring-opening polymerization (polymer product is preferably hydrogenated) or by free-radical polymerization (when the monomer composition may further comprise maleic anhydride and/or sulfur dioxide monomers). The monomers are polymerized using a catalyst of formula (V):

EnNi(C6H5)2 (V)

n = 1 or 2; and

E = neutral 2-electron donor ligand.

Preferred Ligands: are toluene, benzene, mesitylene, diethyl ether, tetrahydrofuran and dioxane.

Preferred Catalysts: are (toluene)bis(perfluorophenyl) nickel, (mesitylene)bis(perfluorophenyl) nickel, (benzene)bis(perfluorophenyl) nickel, bis(tetrahydrofuran)bis(perfluorophenyl) nickel and bis(dioxane)bis(perfluorophenyl) nickel.

Preferred Polymer: The polymer comprises repeat units derived from the monomer (I) and analogous units derived from (II) and, optionally analogous units derived from (III) and/or (IV).

Preferred Embodiment: The polymer may comprise repeat units of formula (VI):

preferably also analogous units in which R1 - R4 are replaced by R5 - R8 respectively and, optionally, analogous units in which R1 - R4 are replaced by R9 - R12 respectively and/or analogous units in which R1 - R4 are replaced by R13 - R16 respectively.

IMAGING AND COMMUNICATION - Preferred Photoresist Composition: The aromatic groups G on the polymer are groups of formulae (VII) - (XI):

X = -OR14 or R15;

a = integer 1 - 5;

a' = integer 1 - 4;

a'' = integer 1 - 3;

R14 = H, 1 - 10C alkyl, -C(O)CH3, tetrahydropyranyl or tert.-butyl; and

R15 = H, bromo, chloro, fluoro, iodo, cyano or -C(O)O-tert.-butyl.

The polymer may have cyclic repeat units containing pendent aromatic groups, acid-labile groups, neutral or polar groups or hydrocarbyl groups or any combination, the groups having the formula (VI) or the analogous structures given above (preferably repeat units derived from the monomers (I) and (II) above). When the X groups are hydroxyl groups, the composition may further comprise a hydroxyl group-reactive crosslinking agent.

ORGANIC CHEMISTRY - Preferred Components: The crosslinker may be methylol; an alkoxyalkyl or carboxymethyl-substituted phenol; or a methylol, alkoxyalkyl or carboxymethyl-substituted cyclic urea, melamine or benzoguanine.

Preferred are compounds of formulae (XII) and (XIII):

The photo acid initiator is triphenylsulfonium triflate, pyrogallol, a tri- or di-arylsulfonium hexafluoroantimonate, hexafluoroarsenate or trifluoromethanesulfonate, a hydroxyimide

ester, an alpha,alpha'-bis-sulfonyl-diazomethane, a sulfonate ester of nitro-benzyl alcohol or a naphthoquinone-4-diazide.

EXTENSION ABSTRACT:

DEFINITIONS - Full Definitions: In (I): - R1 - R4 = H or -(CH2)nC(O)OR, provided at least one group is an aromatic-containing group selected from -G and groups of formula (a) - (f): or R1 and R4, together with the 2 ring carbon atoms to which they are attached, can form either a 6 - 14C aromatic group substituted with -OR14 and/or R15, or a 5-membered heterocyclic group containing at least one heteroatom substituted with G; - R = H or 1 - 10C alkyl; - m, n = integer 0 - 5; - G = aromatic group substituted with -OR14 and/or R15; - R14 = H, 1 - 10C alkyl, -C(O)CH3, tetrahydropyranyl or tert.-butyl; and - R15 = H, bromo, chloro, fluoro, iodo, cyano or -C(O)O-tert.-butyl. - Where -(CH2)nG = (a); -C(O)O(CH2)nG = (b); -C(O)NH(CH2)nG = (c); - CH2OG = (d); -(CH2)nOC(O)O(CH2)nG = (e); and -(CH2)nNHC(O)G = (f). - In (II): - R5 - R8 = -(A)nC(O)ORasterisk, -(A)nC(O)OR, -(A)nOR, -(A)nOC(O)R, -(A)nC(O)R, -(A)nOC(O)OR, -(A)nOCH2C(O)ORasterisk, -(A)nC(O)O-A'-OCH2C(O)ORasterisk, -(A)nOC(O)-A'-C(O)ORasterisk, -(A)nC(R)2CH(R)(C(O)ORasteriskasterisk) or -(A)nC(R)2CH(C(O)ORasteriskasterisk)2 provided at least one of the groups is an acid-labile group containing Rasterisk; - A, A' = divalent hydrocarbon bridging or spacer groups selected from 1 - 10C alkylene, 3 - 8C cycloaliphatic groups of formula (g), optionally substituted; 2 - 10C alkylene ethers, polyethers of formula (h) in which the terminal oxygen atom of the polyether is not linked to a terminal oxygen atom on an adjacent group to form a peroxide linkage, and divalent cyclic ethers or diethers of formula (i) - (k); - a = integer 2 - 7; - Rq = 1 - 10C alkyl; - x = integer 1 - 5; - y = integer 2 - 50; - Rasterisk = acid-labile group selected from dicyclopropylmethyl (DCPM), dimethylcyclopropylmethyl (DMCP), tert.-butyl, -CH(Rp)OCH2CH3, -CH(Rp)OC(CH3)3, the cyclic groups (l) - (r) and mixtures; - Rasteriskasterisk = R or Rasterisk; and - Rp = H or 1 - 5C alkyl. - In (III): - R9 - R12 = H, 1 - 10C alkyl, -(A)nC(O)OR, -(A)nOR, -(A)nOC(O)R, -(A)nOC(O)OR, -(A)nC(O)R, -(A)nOC(O)C(O)OR, -(A)nO-A'-C(O)OR, -(A)nOC(O)-A'-C(O)OR, -(A)nC(O)O-A'-C(O)OR, -(A)nC(O)-A'OR, -(A)nC(O)O-A'-OC(O)OR, -(A)nC(O)O-A'-O-A'-C(O)OR, -(A)nC(O)O-A'-OC(O)C(O)OR, -(A)nC(R)(C(O)OR) or -(A)nC(R)2CH(C(O)OR)2, or R9 and R12, together with the ring carbon atoms to which they are attached, may form a cyclic anhydride group; - A, A' = spacer groups as above; and - R = 1 - 10C alkyl or alkoxyalkylene, or polyether, a 4 - 20C mono- or polycyclic cycloaliphatic group, or cyclic ether, ketone or ester. EXAMPLE - A nickel catalyst solution comprising (toluene)bis(perfluorophenyl) nickel (0.89 g) in toluene (8 ml) (monomer to catalyst ratio 50/1) was added under nitrogen to a solution of bicyclo(2.2.1)hept-5-ene-2-(4-acetoxy) benzene (14.66 g) and norbornene tert.-butyl ester (5.35 g) in toluene (200 ml) at room temperature. After stirring for 5 hours, a solution of 1,2-cyclohexanedione dioxime (0.52 g) in acetone (5 ml) was added to chelate and precipitate the nickel catalyst. The solution was stirred overnight, filtered to remove the catalyst complex, concentrated and poured into methanol to precipitate a copolymer with a monomer molar ratio of 50:50. The polymer was redissolved in tetrahydrofuran, treated with Amberlyst IR-15 (RTM) dry ion exchange resin and reprecipitated in methanol. The yield was 16.65 g (83 %) of a copolymer with Mn of 11,500 and Mw of 28,000 (by GPC). Infrared spectrometry showed that aromatic groups were absent. The polymer (3 g) in 50:50 by volume tetrahydrofuran/methanol and 30 % ammonium hydroxide were heated at 60 degreesC for 18 hours. Further ammonium hydroxide (4 ml) was added and heating was continued for 6 hours. The solution was cooled to room temperature and added dropwise to deionized water (500 ml) containing glacial acetic acid (10 ml) to precipitate a polymer in which the acetoxy groups had been converted to phenol groups. A positive photoresist was prepared by dissolving the product in propylene glycol methyl ether acetate at 10 weight% solids with bis-tert.-butylphenyliodonium perfluorobutanesulfonate (2.5 weight%) as a photo acid generator. The composition was spin-coated onto a

silicon wafer at 2,500 rpm, baked at 90 weight% for 1 minute, exposed through a mask at 25 mJ/cm2 to light of wavelength 248 nm, post-exposure baked at 90 degreesC for 1 minute and developed in 0.26 N tetramethylammonium hydroxide solution for 30 seconds. The exposed resist development rate was 3,500 Angstrom/second (endpoint in 3 seconds). The thickness change of unexposed regions of the resist was nearly zero (less than 100 Angstrom). The resist had high dissolution contrast. The polymer film was very hydrophilic with a water contact angle of 56 degrees. The neat polymer film dissolves slowly in the above developer solution and is transparent at 248 nm with an absorption of 0.15 psim.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A04-D; A04-F; A08-M08; A12-E07C; A12-L02B2; E05-L02C; E06-D09; E06-H; E07-D13B; E07-H03; E10-A01; E10-A09B1; E10-A10D; E10-C02B; E10-C02C2; E10-C03; E10-E02D3; E10-E02F1; G06-D06; G06-F03C; G06-F03D; L04-C05
EPI: U11-A06A

=> D L38 1-10 IFULL

L38 ANSWER 1 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2005-142061 [200515] WPIX
DOC. NO. CPI: C2005-046297 [200515]
DOC. NO. NON-CPI: N2005-120835 [200515]
TITLE: Photosensitive fluoro resin composition for cured film, comprises fluoro copolymer, compound having alkyl etherified amino groups, photosensitive acid generator and solvent
DERWENT CLASS: A14; A89; G06; L03; P84; P83; U11; V05
INVENTOR: NISHIKAWA A; SHIMADA M; YOKOYAMA K
PATENT ASSIGNEE: (JAPS-C) JSR CORP; (NISH-I) NISHIKAWA A; (SHIM-I) SHIMADA M; (YOKO-I) YOKOYAMA K
COUNTRY COUNT: 107

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2005006077	A1	20050120	(200515)*	JA	48[1]	
JP 2005043876	A	20050217	(200515)	JA	29	
US 20060246371	A1	20061102	(200672)	EN		
TW 2005006524	A	20050216	(200958)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005006077	A1	WO 2004-JP9566	20040706
JP 2005043876	A	JP 2004-198244	20040705
US 20060246371	A1	WO 2004-JP9566	20040706
US 20060246371	A1	US 2006-563749	20060109
TW 2005006524	A	TW 2004-120494	20040708

PRIORITY APPLN. INFO: JP 2003-272331 20030709
INT. PATENT CLASSIF.:
MAIN: G03F0007-004
IPC ORIGINAL: G03C0001-00 [I,A]; G03C0001-00 [I,C]
IPC RECLASSIF.: G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-038 [I,A];

G03F0007-038 [I,C]; G03F0007-075 [I,A]; G03F0007-075 [I,C]; H01L0021-02 [I,C]; H01L0021-027 [I,A]
ECLA: G03F0007-004F; G03F0007-038C
USCLASS NCLM: 430/270.100
JAP. PATENT CLASSIF.:
MAIN/SEC.: G03F0007-038 601; G03F0007-075 521; H01L0021-30 502 R
FTERM CLASSIF.: 2H025; 2H125; 5F046; 2H025/AB16; 2H025/AB17; 2H025/AC01; 2H025/AD01; 2H025/BE00; 2H025/CB08; 2H025/CB14; 2H025/CB32; 2H025/CB34; 2H025/CB41; 2H025/CC20; 2H025/FA03; 2H025/FA12; 2H025/FA17

BASIC ABSTRACT:

WO 2005006077 A1 UPAB: 20090910

NOVELTY - A photosensitive fluoro resin composition comprises a fluoro copolymer, a compound having 2 or more alkyl etherified amino groups in the molecule, a photosensitive acid generator and a solvent.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following: (1) cured film obtained by curing the photosensitive fluoro resin composition; (2) formation of pattern film which involves coating the photosensitive fluoro resin composition on a support, drying, forming coating film, exposing film through photomask and developing with an alkaline developing solution; (3) stain resistance film containing the cured film; (4) articles having the cured film on the surface; and

(5) stain resistance articles having the stain resistance film on the surface.

USE - For cured film, stain resistance film, articles and stain resistance articles (all claimed), such as display of cathode ray tube, plasma display panel, liquid crystal display, touch panel, semiconductor element and sensor for identifying fingerprints.

ADVANTAGE - The photosensitive fluoro resin composition forms cured film with excellent stain resistance, thermal shock resistance, adhesion and patterning property, easily. The film prevents the adhesion of fingerprints and water-repellent oil ingredients.

TECHNOLOGY FOCUS:

INORGANIC CHEMISTRY - Preferred Method: The coating film is exposed, using exposure light source of irradiation optical wavelength of 300-500 nm. The cured film has a pattern.

ORGANIC CHEMISTRY - Preferred Method: The coating film is exposed, using exposure light source of irradiation optical wavelength of 300-500 nm. The cured film has a pattern.

POLYMERS - Preferred Copolymer: The fluoro copolymer has structural units (A1-A3), and further contains a siloxane structural unit of formula (3). The unit (A1) has formula (1 or 2). The unit (A1) is derived from fluorine-containing (meth)acrylic ester, fluoro resin and/or fluoro olefin derivative. The unit (A2) is derived from hydroxyl-containing monomer, epoxy group-containing monomer and/or carboxyl group-containing monomer preferably phenolic hydroxyl group-containing monomer. The unit (A3) is derived from vinyl compound, (meth)acrylic ester, unsaturated carboxylic acid ester, (meth)acrylamide and/or unsaturated nitrile.

R1=H or methyl;

R2=2-20C fluoroalkyl;

R3=fluorine atom, 1-20C perfluoroalkyl, 1-10C perfluoroalkoxy or chlorine atom; and

R4,R5=H, 1-10C alkyl, halogenated alkyl or 6-20C aryl.

EXTENSION ABSTRACT:

EXAMPLE - Methyl isobutyl ketone (375 g), ethyl vinyl ether (39.2 g), 2-hydroxylethyl vinyl ether (47.9 g), Adekalia soap NE-30 (50 g), 4-isopropylidene-1-methyl cyclohexene (5 g), VPS-0501 (azo containing polysiloxane) (2.5 g) and dilauroyl peroxide (12.5 g) were reacted in an autoclave substituted with nitrogen gas. Subsequently, hexafluoropropylene

(196.64 g) was added in the mixture, and reacted at 75degreesC for 13 hours. Unreacted monomer was removed from the mixture, to obtain a polymer solution. The polymer was precipitated form the solution. The precipitate was washed and dried, to obtain fluorine-containing copolymer having number average molecular weight of 7600. The obtained copolymer (in weight parts) (100), Cymel 300 (hexamethoxy methyl melamine) (100), 4,7-di-n-butoxy naphthyl tetrahydro thio phenonium trifluoromethane sulfonate (8) and ethyl lactate (380) were mixed, to obtain a photosensitive fluoro resin composition. A cured film obtained from the composition had excellent stain resistance, white ability, scratch resistance, thermal shock resistance, adhesion and patterning property.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A04-E10; A08-C09; A12-E01; A12-L02B2; G06-D06A; G06-D06B; G06-F03C; G06-F03D; L03-C03; L03-G05B; L03-G05B9; L03-G05E
EPI: U11-A06A; V05-A01A3; V05-A01D1; V05-D01B; V05-D07A5

L38 ANSWER 2 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2004-111137 [200412] WPIX
DOC. NO. CPI: C2004-045302 [200412]
DOC. NO. NON-CPI: N2004-088513 [200412]
TITLE: Optionally esterified epoxy acrylates useful in photoresists are based on epoxidized novolaks reacted with aromatic hydroxycarboxylic acids and ethylenically-unsaturated monocarboxylic acids
DERWENT CLASS: A14; A21; A89; G06; L03; P84; U11; V04
INVENTOR: GRUNDKE U; KALLA V; ROTTLAENDER C
PATENT ASSIGNEE: (BAKE-C) BAKELITE AG
COUNTRY COUNT: 30

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 1364978 <--	A1	20031126	(200412)*	DE	10[0]	
DE 10223313 <--	A1	20031211	(200416)	DE		
EP 1364978	B1	20050601	(200536)	DE		
DE 50300591	G	20050707	(200545)	DE		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1364978 A1		EP 2003-9577	20030429
DE 10223313 A1 20020524		DE 2002-10223313	
DE 50300591 G 20030429		DE 2003-50300591	
DE 50300591 G		EP 2003-9577	20030429

FILING DETAILS:

PATENT NO	KIND		PATENT NO
DE 50300591 G		Based on	EP 1364978 A

PRIORITY APPLN. INFO: DE 2002-10223313 20020524
INT. PATENT CLASSIF.:
MAIN: C08G0059-14
SECONDARY: C08F0220-32; C08F0290-06; C08G0008-28; C08G0008-32; C08G0008-36
IPC RECLASSIF.: C08F0290-00 [I,C]; C08F0290-14 [I,A]; C08F0299-00 [I,C]; C08F0299-02 [I,A]; C08G0059-00 [I,C]; C08G0059-14 [I,A]; C08G0059-16 [I,A]; C08G0059-62 [I,A]
ECLA: C08F0290-14C; C08F0299-02C; C08G0059-14K2D2; C08G0059-14S; C08G0059-62D4

BASIC ABSTRACT:
EP 1364978 A1 UPAB: 20060121
NOVELTY - Epoxy acrylates are based on epoxidized novolaks reacted with an aromatic hydroxycarboxylic acid and then with an ethylenically-unsaturated monocarboxylic acid.
DETAILED DESCRIPTION - Epoxy acrylates are of formula (I) R = a group of formula (II); R/ = 1-4C alkyl or halogen; x = integer 0-3;
R// = hydroxy;
m = integer 0-4;
n = integer 0-300;
M = glycidyl or an OH- substituted group of formula (III); R1 = H or methyl; and
R2 = H, methyl or phenyl
INDEPENDENT CLAIMS are also included for (i) epoxy acrylates of formula (I) in which at least10 mol. % of M is an OH-substituted group of formula (III); (ii) epoxy acrylates of formula (I) in which 50-100% of all OH groups are esterified with an anhydride of a polybasic carboxylic acid; and (iii) preparation of the epoxy acrylates.
USE - In photoresist formulations (claimed).
ADVANTAGE - The epoxy acrylates have increased mol. weight compared to prior-art epoxy acrylates and give non-sticky photoresists with good adhesive properties, as well as good edge profile and nickel-gold resistance. TECHNOLOGY FOCUS:
POLYMERS - Claimed Preparations : The epoxy acrylates (I) are prepared by (i) reacting 2 mols. of an epoxidized novolac with 0.5-1.5 (especially 1) mols. of an aromatic hydroxycarboxylic acid and then (ii) reacting the product with at least10 mol.% of an ethylenically-unsaturated monocarboxylic acid. The epoxy acrylates with at least50 mol.% of all OH groups are esterified with an anhydride of a polybasic carboxylic acid are obtained using 50-100 mol.% of the stoichiometric amount of the anhydride, especially methyltetrahydrophthalic anhydride.
EXTENSION ABSTRACT:
EXAMPLE - A modified epoxy acrylate of mol. weight 2778 whose 65% solution in butylglycol acetate (BGA) at 25degreesC was of viscosity 4600 mPa.s was obtained by (i) stirring catalyst (ethyltriphenylphosphonium acetate) (2g) and salicylic acid (138g) into a solution of an epoxidized novolac (EEW 211g; 150degreesC melt viscosity 1450 mPa.s) (2640g) in BGA; and (ii) heating at 155-160degreesC until the acid number was below 1 mg KOH/g.
FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A10-E07B; A12-L02E; G06-D04; G06-F03B; L03-H04E2; L04-C06B
EPI: U11-A06A; V04-R01A1

L38 ANSWER 3 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2004-041011 [200404] WPIX
DOC. NO. CPI: C2004-016484 [200404]
DOC. NO. NON-CPI: N2004-033246 [200404]
TITLE: Photoresist composition for forming embossing

pattern of liquid crystal display device comprises thermal acid generator producing acid by heat

DERWENT CLASS: A89; G06; L03; P84; U11; U14

INVENTOR: JU J; JU J H; KANG S; KANG S C; LEE D; LEE D G; LEE Y; LEE Y G; CHOO C; GANG S; KYO S; LEE W; RI T; RI Y; SHU S

PATENT ASSIGNEE: (SMSU-C) SAMSUNG ELECTRONICS CO LTD

COUNTRY COUNT: 5

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20030134222	A1	20030717	(200404)*	EN	17[4]	
<--						
CN 1432871	A	20030730	(200404)	ZH		
<--						
JP 2003207891	A	20030725	(200404)	JA	12	
<--						
KR 2003060435	A	20030716	(200404)	KO		
<--						
US 6686120	B2	20040203	(200413)	EN		
TW 229783	B1	20050321	(200629)	ZH		
CN 1306336	C	20070321	(200751)	ZH		
KR 824356	B1	20080422	(200924)	KO		
JP 4336094	B2	20090930	(200964)	JA	18	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20030134222	A1	US 2002-219711	20020815
KR 2003060435	A	KR 2002-1138	20020109
KR 824356	B1	KR 2002-1138	20020109
US 6686120	B2	US 2002-219711	20020815
TW 229783	B1	TW 2002-118917	20020821
CN 1432871	A	CN 2002-145838	20021015
CN 1306336	C	CN 2002-145838	20021015
JP 2003207891	A	JP 2002-317448	20021031
JP 4336094	B2	JP 2002-317448	20021031

FILING DETAILS:

PATENT NO	KIND	PATENT NO	
KR 824356	B1 Previous Publ	KR 2003060435	A
JP 4336094	B2 Previous Publ	JP 2003207891	A

PRIORITY APPLN. INFO: KR 2002-1138 20020109
US 2002-219711 20020815

INT. PATENT CLASSIF.:

MAIN: G03F0007-008

IPC ORIGINAL: G03F0007-00 [I,A]; G03F0007-00 [I,C]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-008 [I,A]; G03F0007-008 [I,C]; G03F0007-023 [I,A]; G03F0007-023 [I,A]; G03F0007-023 [I,C]; G03F0007-023 [I,C]

IPC RECLASSIF.: G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-008 [I,A]; G03F0007-008 [I,C]; G03F0007-022 [I,A]; G03F0007-022 [I,C]; G03F0007-023 [I,A]; G03F0007-023

[I,C]; G03F0007-033 [I,A]; G03F0007-033 [I,C]; G03F0007-40 [I,A]; G03F0007-40 [I,C]; H01L0021-02 [I,C]; H01L0021-027 [I,A]

ECLA: G03F0007-023P; G03F0007-40

USCLASS NCLM: 430/191.000

NCLS: 430/165.000; 430/192.000; 430/193.000; 430/326.000; 430/330.000

JAP. PATENT CLASSIF.:

MAIN/SEC.: G03F0007-004 501; G03F0007-022; G03F0007-023; G03F0007-033; H01L0021-30 502 R

MAIN: G03F0007-004 501

SECONDARY: G03F0007-023

FTERM CLASSIF.: 2H025; 2H125; 5F046; 2H025/AB17; 2H025/AC01; 2H025/AD03; 2H025/BE01; 2H025/CB13; 2H025/CB14; 2H025/CB52; 2H025/CB55; 2H025/CC20; 2H025/FA03; 2H025/FA17; 2H025/FA29

BASIC ABSTRACT:

US 20030134222 A1 UPAB: 20090423

NOVELTY - A photoresist composition comprises: (i) 100 parts by weight alkali-soluble acryl copolymer;
(ii) 5-100 parts by weight 1,2-quinonediazide compound; (iii) 2-35 parts by weight nitrogen-containing cross-linker; and
(iv) 0.1-10 parts by weight of a thermal acid generator producing an acid by heat.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of forming a pattern by: (a) coating a photoresist composition on a substrate (20) and drying to form a photoresist layer (22); (b) exposing the photoresist layer by using a mask (26) having a predetermined shape;
(c) developing the exposed photoresist layer by using an aqueous alkaline solution to form a photoresist pattern; and
(d) heating the photoresist pattern to cure.

USE - For forming an embossing pattern of a liquid crystal display device (claimed).

ADVANTAGE - The photoresist composition of the invention exhibits good residual layer rate and heat resistance. The obtained photoresist pattern is heated to cure without generating thermal reflow.

DESCRIPTION OF DRAWINGS - The figure shows a cross-sectional view of a step of forming a pattern using the photoresist composition.

Substrate (20)
Photoresist layer (22)
Light (24)
Mask (26)

TECHNOLOGY FOCUS:

MECHANICAL ENGINEERING - Preferred Method: Heating is performed at 100-250degreesC.

POLYMERS - Preferred Property: The alkali-soluble acryl copolymer has a weight-average molecular weight of 5x103 - 3x104 as converted to polystyrene.

Preferred Polymer: The alkali-soluble acryl copolymer is prepared by copolymerizing 5-40 weight% unsaturated carbonic acid and/or its anhydride, 10-70 weight% epoxy-functional group-containing unsaturated compound, and 10-70 weight% unsaturated olefin compound in a solvent having a polymerization initiator.

ORGANIC CHEMISTRY - Preferred Compounds: The unsaturated carbonic acid is (meth)acrylic acid and/or maleic acid anhydride.

The epoxy-functional group-containing unsaturated compound is glycidyl acrylate, glycidyl methacrylate, alpha-ethylglycidyl acrylate, alpha-n-propylglycidyl acrylate, alpha-n-butylglycidyl acrylate, (meth)acrylic acid-beta-methyl glycidyl, (meth)acrylic

acid-beta-ethyl glycidyl, (meth)acrylic acid-3,4-epoxybutyl, (meth)acrylic acid-6,7-epoxy heptyl, alpha-ethyl acrylic acid-6,7-epoxy heptyl, o-vinylbenzyl glycidyl ether, m-vinyl benzylglycidyl ether, and/or p-vinylbenzyl glycidyl ether.

The unsaturated olefin compound is benzyl (meth)acrylate, methyl (meth)acrylate, ethyl methacrylate, n-butyl methacrylate, sec-butyl methacrylate, t-butyl methacrylate, isopropyl acrylate, cyclohexyl (meth)acrylate, 2-methyl cyclohexyl (meth)acrylate, dicyclopentanyl oxyethyl (meth)acrylate, isobornyl (meth)acrylate, phenyl (meth)acrylate, 2-hydroxyethyl methacrylate, styrene, alpha-methyl styrene, m-methyl styrene, p-methyl styrene, vinyl toluene, p-methoxy styrene, 1,3-butadiene, isoprene, and/or 2,3-dimethyl 1,3-butadiene.

The 1,2-quinonediazide compound is prepared by reacting a naphthoquinonediazide sulfonic acid halogen compound with a phenol compound under the presence of a base.

The phenol compound is 2,3,4-trihydroxy benzophenone, 2,4,6-trihydroxy benzophenone, 2,2',4,4'-tetrahydroxy benzophenone, 2,3,4,3'-tetrahydroxy benzophenone, 2,3,4,4'-tetrahydroxy benzophenone, 2,3,4,2'-tetrahydroxy 4'-methyl benzophenone, 2,3,4,4'-tetrahydroxy 3'-methoxy benzophenone, 2,3,4,2',6'-pentahydroxy benzophenone, 2,4,6,3',4',5'-hexahydroxy benzophenone, 3,4,5,3',4', 5'-hexahydroxy benzophenone, bis(2,4-dihydroxyphenyl)methane, bis(p-hydroxyphenyl)methane, tri(p-hydroxyphenyl)methane, 1,1,1-tri(p-hydroxyphenyl)ethane, bis(2,3,4-trihydroxyphenyl)methane, 2,2-bis(2,3,4-trihydroxyphenyl)propane, 1,1,3-tris(2,5-dimethyl 4-hydroxyphenyl)-3-phenyl propane, 4,4'-(1-(4-(1-(4-hydroxyphenyl)-1-methylethyl)phenyl(ethylidene)bisphenol, and/or bis(2,5-dimethyl 4-hydroxyphenyl)-2-hydroxyphenylmethane.

The 1,2-quinonediazide compound is 1,2-quinonediazide 4-sulfonic acid ester, 1,2-quinonediazide 5-sulfonic acid ester and/or 1,2-quinonediazide 6-sulfonic acid ester.

The nitrogen-containing cross-linking agent is methylol urea alkyl ether prepared by reacting a condensing product of urea and formaldehyde with alcohol, and methyl melamine alkyl ether prepared by reacting a condensing product of melamine and formaldehyde with alcohol.

The methylol urea alkyl ether includes mono methyl urea methyl ether or dimethyl urea methyl ether. The methylol melamine alkyl ether includes hexamethylol melamine hexamethyl ether or hexamethylol melamine hexabutyl ether.

The thermal acid generator includes a sulfonic ester compound of formula (A).

R = alkyl.

It includes cyclohexane toluene sulfonic ester of structure (1), cyclohexane propyl sulfonic ester of structure (2), cyclohexane methyl sulfonic ester of structure (3), cyclohexane octyl sulfonic ester of structure (4), or cyclohexane camphor sulfonic ester of structure (5).

Preferred Parameters: An esterification degree of the reaction between the naphthoquinonediazide sulfonic acid halogen compound and the phenol compound is 50-85%. A solid concentration of the photoresist composition is 30-70%.

EXTENSION ABSTRACT:

EXAMPLE - A polymer solution of alkali-soluble acryl copolymer (100 parts by weight), 4,4'-(1-(4-(1-(4-hydroxyphenyl)-1- methylethyl)phenyl(ethylidene)bisphenol 1,2-naphthoquinonediazide-5-sulfonic acid ester (25 parts by weight), melamine

resin, hexamethylol melamine hexamethyl ether (10 parts by weight), and cyclohexane toluene sulfonic ester (5 parts by weight) were mixed. - The mixture was dissolved into propylene glycol monomethyl ether acetate so that the solid content of the obtained solution was 35 weight%. The solution was filtered to obtain a positive-type photoresist composition. - The photoresist composition was coated on a glass substrate and then worked up to form an organic insulating layer pattern. The organic layer had a sensitivity of 200 mJ/cm2, resolution of 3 mum, residual layer rate of 93% and heat resistance, wherein changing rate of the pattern size due to the thermal flow rate was at most5%.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A04-F01A; A08-C09; A12-L02B2; A12-L03B; G06-D06; G06-F03C; G06-F03D; L04-C05
EPI: U11-A06A; U14-K01A1J

L38 ANSWER 4 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2003-212510 [200321] WPIX
DOC. NO. CPI: C2003-054466 [200321]
DOC. NO. NON-CPI: N2003-169346 [200321]
TITLE: New acid generator for use in positive-tone or negative-tone radiation-sensitive resin composition as chemically amplified resist for microfabrication
DERWENT CLASS: A89; E19; G06; L03; P84; U11
INVENTOR: EBATA S; EHATA S; HAYASHI A; IWASAWA H; IWAZAWA H; KOMETA E; NAGAI T; NISHIMURA Y; O I; SHIMOKAWA T; TONERI T; WANG Y; YONEDA E; EIJI Y; TATSUYA T; TOMOKI N
PATENT ASSIGNEE: (HAYA-I) HAYASHI A; (IWAS-I) IWASAWA H; (JAPS-C) JSR CORP; (SHIM-I) SHIMOKAWA T; (EBAT-I) EBATA S; (NAGA-I) NAGAI T; (NISH-I) NISHIMURA Y; (TONE-I) TONERI T; (WANG-I) WANG Y; (YONE-I) YONEDA E
COUNTRY COUNT: 33

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 1270553	A2	20030102	(200321)*	EN	100[15]	
<--						
US 20030113658	A1	20030619	(200341)	EN		
<--						
JP 2003173027	A	20030620	(200350)	JA	26	
<--						
KR 2003023462	A	20030319	(200350)	KO		
<--						
CN 1432873	A	20030730	(200365)	ZH		
<--						
US 20030170561	A1	20030911	(200367)	EN		
<--						
JP 2004002252	A	20040108	(200405)	JA	96	
US 6908722	B2	20050621	(200543)	EN		
JP 2006133803	A	20060525	(200635)	JA	47	
SG 120873	A1	20060426	(200635)	EN		
JP 3826777	B2	20060927	(200663)	JA	46	
JP 3841108	B2	20061101	(200672)	JA	41	
CN 1276303	C	20060920	(200706)	ZH		
CN 1916760	A	20070221	(200743)	ZH		
US 7288359	B2	20071030	(200772)	EN		
JP 2008001906	A	20080110	(200805)	JA	119	

IL 150494	A	20080106 (200807)	EN	
JP 4110319	B2	20080702 (200845)	JA	84
JP 2008189668	A	20080821 (200857)	JA	50
KR 863119	B1	20081014 (200912)	KO	
TW 304060	B1	20081211 (200946)	ZH	
EP 1270553	B1	20091118 (200976)	EN	
DE 60234409	E	20091231 (201003)	DE	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1270553 A2		EP 2002-14416	20020628
JP 2003173027 A		JP 2001-371311	20011205
JP 2006133803 A	Div Ex	JP 2001-371311	20011205
JP 3826777 B2		JP 2001-371311	20011205
JP 3841108 B2	Div Ex	JP 2001-371311	20011205
CN 1432873 A		CN 2002-160643	20020628
CN 1276303 C		CN 2002-160643	20020628
EP 1270553 B1		EP 2002-14416	20020628
JP 2004002252 A		JP 2002-189133	20020628
JP 2008001906 A	Div Ex	JP 2002-189133	20020628
JP 4110319 B2		JP 2002-189133	20020628
JP 2008189668 A	Div Ex	JP 2002-189133	20020628
KR 2003023462 A		KR 2002-36602	20020628
KR 863119 B1		KR 2002-36602	20020628
SG 120873 A1		SG 2002-3901	20020628
TW 304060 B1		TW 2002-114303	20020628
US 20030113658 A1		US 2002-183441	20020628
US 6908722 B2		US 2002-183441	20020628
IL 150494 A		IL 2002-150494	20020630
US 20030170561 A1		US 2002-309017	20021204
US 7288359 B2		US 2002-309017	20021204
CN 1916760 A 20020628		CN 2006-10126701	
JP 2006133803 A		JP 2006-5710	20060113
JP 3841108 B2		JP 2006-5710	20060113
JP 2008001906 A		JP 2007-185083	20070713
JP 2008189668 A		JP 2008-13412	20080124
DE 60234409 E 20020628		DE 2002-60234409	
DE 60234409 E		EP 2002-14416	20020628

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
JP 3826777	B2	Previous Publ	JP 2003173027	A
JP 4110319	B2	Previous Publ	JP 2004002252	A
JP 3841108	B2	Previous Publ	JP 2006133803	A
KR 863119	B1	Previous Publ	KR 2003023462	A
DE 60234409	E	Based on	EP 1270553	A

PRIORITY APPLN. INFO: JP 2002-81235 20020322
JP 2001-200154 20010629
JP 2001-371311 20011205
JP 2006-5710 20060113

INT. PATENT CLASSIF.:
MAIN: G03F0007-004
IPC ORIGINAL: C07C0025-00 [I,A]; C07C0025-00 [I,C]; C07C0309-00

[I,C]; C07C0309-00 [I,C]; C07C0309-06 [I,A];
C07C0309-17 [I,A]; C07C0309-17 [I,A]; C07C0309-19
[I,A]; C07C0309-19 [I,A]; C07C0309-19 [I,A];
C07C0309-23 [I,A]; C07C0309-23 [I,A]; C07C0309-24
[I,A]; C07C0309-79 [I,A]; C07C0309-80 [I,A];
C07C0309-81 [I,A]; C07C0309-84 [I,A]; C07C0317-00
[I,C]; C07C0317-02 [I,A]; C07C0317-06 [I,A];
C07C0381-00 [I,C]; C07C0381-00 [I,C]; C07C0381-12
[I,A]; C07C0381-12 [I,A]; C07D0207-00 [I,C];
C07D0207-00 [I,C]; C07D0207-40 [I,A]; C07D0207-40
[I,A]; C07D0209-48 [I,A]; C07D0209-70 [I,A];
C07D0211-00 [I,C]; C07D0211-88 [I,A]; C07D0221-00
[I,C]; C07D0221-14 [I,A]; C07D0333-00 [I,C];
C07D0333-00 [I,C]; C07D0333-46 [I,A]; C07D0333-46
[I,A]; C07D0333-78 [I,A]; C07D0335-00 [I,C];
C07D0335-02 [I,A]; C07D0347-00 [I,A]; C07D0347-00
[I,C]; C07D0491-00 [I,C]; C07D0491-18 [I,A];
C08K0005-00 [I,C]; C08K0005-42 [I,A]; C08L0083-00
[I,C]; C08L0083-04 [I,A]; C09K0003-00 [I,A];
C09K0003-00 [I,C]; G03C0001-73 [I,A]; G03C0001-73
[I,C]; G03F0007-004 [I,A]; G03F0007-004 [I,A];
G03F0007-004 [I,A]; G03F0007-004 [I,A]; G03F0007-004
[I,C]; G03F0007-004 [I,C]; G03F0007-038 [I,A];
G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-038
[I,C]; G03F0007-039 [I,A]; G03F0007-039 [I,A];
G03F0007-039 [I,A]; G03F0007-039 [I,C]; G03F0007-039
[I,C]; G03F0007-039 [I,C]; G03F0007-075 [I,A];
G03F0007-075 [I,A]; G03F0007-075 [I,C]; G03F0007-075
[I,C]; H01L0021-02 [I,C]; H01L0021-027 [I,A];
C07C0025-00 [I,A]; C07C0025-00 [I,C]; C07C0309-00
[I,C]; C07C0309-17 [I,A]; C07C0309-19 [I,A];
C07D0209-00 [I,C]; C07D0209-00 [I,C]; C07D0209-48
[I,A]; G03F0007-004 [I,C]

IPC RECLASSIF.: C07C [I,S]; C07C0309-00 [I,A]; C07C0309-00 [I,C];
C07C0309-00 [I,C]; C07C0309-00 [I,C]; C07C0309-06
[I,A]; C07C0309-17 [I,A]; C07C0309-17 [I,A];
C07C0309-19 [I,A]; C07C0309-23 [I,A]; C07C0309-80
[I,A]; C07C0309-84 [I,A]; C07C0381-00 [I,C];
C07C0381-12 [I,A]; C07D0333-00 [I,C]; C07D0333-46
[I,A]; C07D0333-78 [I,A]; C07D0335-00 [I,C];
C07D0335-02 [I,A]; C07D0347-00 [I,A]; C07D0347-00
[I,C]; C08G0077-00 [I,C]; C08G0077-14 [I,A];
C09K0003-00 [I,A]; C09K0003-00 [I,C]; G03F0007-004
[I,A]; G03F0007-004 [I,A]; G03F0007-004 [I,C];
G03F0007-004 [I,C]; G03F0007-038 [I,A]; G03F0007-038
[I,C]; G03F0007-039 [I,A]; G03F0007-039 [N,A];
G03F0007-039 [I,C]; G03F0007-039 [N,C]; G03F0007-075
[I,A]; G03F0007-075 [N,A]; G03F0007-075 [I,C];
G03F0007-075 [N,C]; H01L0021-02 [I,C]; H01L0021-027
[I,A]

ECLA: C07C0309-17; C07C0309-19; C07C0309-23; C07C0381-12;
C07D0333-46; C07D0333-78; C07D0335-02; C07D0347-00;
G03F0007-004D

ICO: M07C0102:42; M07C0103:86; M07D0333:46; M07D0333:78;
M07D0335:02; M07D0347:00; S03F0007:039C;
S03F0007:075M

USCLASS NCLM: 430/270.100

NCLS: 430/326.000; 430/905.000; 430/913.000; 430/914.000;
430/921.000; 430/925.000; 549/005.000; 549/006.000;
549/013.000; 549/029.000; 558/054.000; 568/019.000;

568/027.000; 568/028.000

JAP. PATENT CLASSIF.:

MAIN/SEC.: C07C0309-06; C07C0309-17; C07C0309-19; C07C0309-23 (CSP); C07C0309-24 (CSP); C07C0309-80; C07C0309-81; C07C0309-84; C08G0077-14; C08K0005-42; C08L0083-04; C09K0003-00 K; G03F0007-004 501; G03F0007-004 503; G03F0007-004 503 A; G03F0007-038 601; G03F0007-039 601; G03F0007-075 511; G03F0007-075 521; H01L0021-30 502 R

MAIN: C07C0309-24 (CSP); C09K0003-00 K

SECONDARY: C07C0309-06; C07C0309-17; C07C0309-19; C07C0309-23 (CSP); C07C0309-80; C07C0309-81; C07C0309-84; G03F0007-004 501; G03F0007-004 503 A; G03F0007-038 601; G03F0007-039 601; H01L0021-30 502 R

FTERM CLASSIF.: 2H025; 2H125; 4H006; 4H016; 4J002; 4J035; 4J246; 5F046; 2H025/AA00; 4H006/AA01; 2H025/AA02; 4H006/AA03; 4J246/AA03; 4J246/AB06; 2H025/AB16; 4H006/AB76; 4H006/AB80; 4H006/AB81; 4H006/AB84; 2H025/AC04; 2H025/AC05; 2H025/AC06; 2H025/AC08; 2H025/AD01; 2H025/AD03; 4J035/BA01; 4J035/BA04; 4J246/BA12.X; 4J246/BA31.0; 4J246/BB02.0; 4J246/BB02.2; 4J246/BB02.X; 4J246/BB26.0; 4J246/BB27.0; 2H025/BE00; 2H025/BE07; 2H025/BE10; 2H025/BF02; 2H025/BF15; 2H025/BF29; 2H025/BG00; 4H006/BJ30; 4H006/BM10; 4H006/BM71; 4J035/CA01.N; 4J035/CA07.2; 4J035/CA10.2; 4J246/CA14.0; 4J246/CA14.U; 4J246/CA14.X; 4J246/CA23.0; 4J246/CA24.0; 4J246/CA24.X; 4J246/CA25.0; 4J246/CA44.0; 4J246/CA46.0; 4J246/CA53.0; 4J246/CA53.X; 4J246/CA56.0; 4J246/CA63.0; 4J246/CA63.X; 4J246/CA64.X; 4J246/CB08; 2H025/CB17; 2H025/CB33; 2H025/CB41; 2H025/CB52; 2H025/CB55; 2H025/CB56; 2H025/CC20; 4J002/CP05.1; 4J002/CP08.1; 4J002/EV23.6; 2H025/FA03; 4J246/FA07.1; 4J246/FA08.1; 2H025/FA12; 4J246/FA13.1; 2H025/FA17; 4J246/FA43.1; 4J246/FA44.1; 4J246/FA45.1; 4J035/FB01; 4J246/FB03.1; 4J246/FB04.1; 4J246/FB05.1; 4J246/FB08.1; 4J246/FB09.1; 4J246/FB21.1; 4J246/FB22.1; 4J246/FB23.1; 4J246/FC06.1; 4J246/FC09.1; 4J246/FC21.1; 4J246/FC22.1; 4J246/FC25.1; 4J002/FD20.6; 4J246/GA01; 4J246/GA02; 4J246/GA11; 4J002/GP03; 4J246/HA15; 4J035/LB16

BASIC ABSTRACT:

EP 1270553 A2 UPAB: 20090222

NOVELTY - An acid generator (I) is new.

DETAILED DESCRIPTION - An acid generator of formula R-C(Z1)(Z2)-SO2- (I) is new.

R = monovalent organic group with a fluorine content of at most50 weight%, cyano, or H;

Z1, Z2 = F or 1-10C perfluoroalkyl. INDEPENDENT CLAIMS are included for: (a) A sulfonic acid of formula R-C(Z1)(Z2)-SO3H; (b) A sulfonate of formula R-C(Z1)(Z2)-SO3M; (c) A sulfonyl halide compound of formula R-C(Z1)(Z2)-SO2A; (d) A positive-tone radiation-sensitive resin composition comprising (i) the acid generator and an alkali soluble or alkali low soluble resin comprising an acid-cleavable group that becomes soluble in alkali when the acid-cleavable group dissociates; or (ii) the acid generator, an alkali soluble resin and an alkali solubility control agent; and (e) A negative-tone radiation-sensitive resin composition comprising the acid generator, an alkali soluble resin, and a compound which can crosslink an alkali soluble resin in the presence of an acid.

M = Na, K or Li;
A = halo.
USE - For use in a positive-tone or negative-tone radiation-sensitive resin composition (claimed) which is used as a chemically amplified resist for microfabrication employing deep ultraviolet rays (e.g., excimer laser), X-rays (e.g., synchroton radiation) or charged particle rays (e.g., electron beams).
ADVANTAGE - The photoacid generator, when used in a chemically amplified radiation-sensitive resin composition, exhibits high transparency, comparatively high combustibility, and no bioaccumulation. It produces an acid exhibiting high acidity, high boiling point, moderately short diffusion length in the resist coating, and low dependency to mask pattern density. DESCRIPTION OF DRAWINGS - The figure shows the results of nuclear magnetic resonance (1H-NMR) analysis for an acid generator, 1,4-butylene-(1-n-butoxynaphtha-4-yl)sulfonium 1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane sulfonate. TECHNOLOGY FOCUS:
ORGANIC CHEMISTRY - Preparation: From the disclosure, the acid generator can be prepared by causing a precursor R-C(Z1)(Z2)-X to react with sodium dithionite in the presence of an inorganic base to produce a sulfinate, oxidizing the sulfinate using an oxidizing agent to produce a sulfonate, and then conducting an ion-exchange reaction using a counter-ion-exchange precursor M+X-.
Preferred Compounds: The acid generator may have a structure of formula R-C(F)2-SO2-, R-C(F)(CF3)-SO2- or R-C(CF3)2-SO2-. The acid generator preferably has a structure of formula (Ia) or (Ib):
Y1 = single-bond or divalent group;
R' = monovalent or divalent substituent;
k = 0 or more;
n = 0-5.
The acid generator may be an onium sulfonate compound of formula R-C(Z1)(Z2)-SO3- M+. It preferably is of formula (Ia) or (Ib).
M+ = monovalent onium cation, preferably sulfonium cation of formula R2-S+(R1)-R3 or iodonium cation of formula R4-I+-R5;
R1-R5 = optionally substituted 1-10C alkyl or 6-18C aryl; or at least2 of R1-R3 form a ring together with the sulfur atom and R4 and R5 form a ring together with the iodine atom.
The acid generator may be an N-sulfonyloxyimide compound of formula (II), preferably formula (IIa) or (IIb):
R6, R7 = H or optionally substituted monovalent organic group; or
CR6R7 = ring;
Y2 = single bond, double bond or divalent organic group;
Y1 = single-bond or divalent group.

EXTENSION ABSTRACT:
SPECIFIC COMPOUNDS - Twenty-four acid generators are disclosed, including 1,4-butylene-(1-n-butoxynphtha-4- yl)sulfonium 1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane sulfonate, triphenylsulfonium 1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane sulfonate, diphenyliodonium 1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane sulfonate, N-(1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethylsulfonyloxy)-5-norbornen e-2,3-dicarboxyimide, 1,1,2,2-tetrafluoro-2-(tetracyclo(4.4.0.12,5.17,10)dodecan-8-yl)ethane sulfonate, triphenylsulfonium methoxycarbonyl difluoromethane sulfonate, 1-(4-hydroxy-3,5-dimethylphenyl)tetrahydrothiophenium 1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane sulfonate, bis(4-t-butylphenyl)iodonium 1,1,2,2-tetrafluoro-2-(norbornan-2- yl)ethane sulfonate.
EXAMPLE - A mixture of dicyclopentadiene (108.5 g) and 1-bromo-1,1,2,2-tetrafluoro-3-butene (322.4 g) and a polymerization inhibitor was stirred for 5 hours at 170degreesC to produce 1-bromo-1,1,2,2-tetrafluoro-2-(norborn-5-en-2- yl) ethane (A). A solution of (A) (62 g) in ethyl acetate (1000 ml) was

added with alumina (12 g) containing 5% rhodium and stirred for 3 hours under hydrogen to obtain 1-bromo-1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane (B). A solution of (B) (55 g) in acetonitrile was added at room temperature with a solution of sodium dithionite (70 g) and sodium hydrogencarbonate (52 g) in water (300 ml) and then reacted for 2 hours at 75degreesC. After evaporating acetonitrile, sodium tungstate dihydrate (0.350 g) and disodium hydrogen phosphate (5 g) were added. A 30% hydrogen peroxide aqueous solution (5.6 ml) was added. The solution was further worked up to obtain 1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane sodium sulfonate (C). A solution of (C) (116 g) in water (150 ml) was added to a mixture of 1-n-butoxynaphthalene (80 g), phosphorus pentoxide-methanesulfonic acid mixture (212 g) and tetramethylene sulfoxide (47 g) to obtain 1,4-butylene-(1-n-butoxynaphtha-4-yl)sulfonium 1,1,2,2-tetrafluoro-2-(norbornan-2-yl)ethane sulfonate (76 g) as acid generator.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A12-L02E; E06-D; E06-D13; E07-D; E09-A; E09-C02; E10-A01; E10-A09B1; E10-A09B2; E10-A10D; G06-D04; G06-F03D; L04-C05
EPI: U11-A06A

L38 ANSWER 5 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2000-602837 [200058] WPIX
DOC. NO. CPI: C2000-180546 [200058]
DOC. NO. NON-CPI: N2000-446029 [200058]
TITLE: Negative-type light-sensitive resin composition for manufacture of circuit boards, semiconductor chip carriers and semiconductor devices, contains cis-diene substituted polyamic acid or polyimide and oxygen sensitizer
DERWENT CLASS: A26; A89; G06; L03; P83; P84; U11
INVENTOR: SHIGEMITSU Y; TAJIMA Y; TAKEUCHI E; TAKEUCHI K
PATENT ASSIGNEE: (RIKA-C) RIKAGAKU KENKYUSHO; (RIKE-C) RIKEN KK; (SUMB-C) SUMITOMO BAKELITE CO LTD; (RICR-C) DOKURITSU GYOSEI HOJIN RIKAGAKU KENKYUSH
COUNTRY COUNT: 5

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
DE 10003011	A1	20000831	(200058)*	DE	28[0]	
<--						
JP 2000214585	A	20000804	(200058)	JA	12	
<--						
JP 2000338668	A	20001208	(200104)	JA	15	
<--						
KR 2000076496	A	20001226	(200134)	KO		
<--						
US 6528231	B1	20030304	(200320)	EN		
<--						
KR 2002092258	A	20021211	(200328)	KO		
<--						
TW 526386	A	20030401	(200366)	ZH		
<--						
US 20030194621	A1	20031016	(200369)	EN		
<--						
US 6709804	B2	20040323	(200421)	EN		
KR 411757	B	20031218	(200425)	KO		
<--						
KR 414697	B	20040113	(200428)	KO		

JP 4033426 B2 20080116 (200807) JA 19
JP 4258690 B2 20090430 (200930) JA 19

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 10003011 A1 20000125		DE 2000-10003011	
JP 2000214585 A		JP 1999-15176	19990125
JP 4033426 B2		JP 1999-15176	19990125
JP 2000338668 A		JP 1999-147097	19990526
KR 2000076496 A		KR 2000-2746	20000120
KR 411757 B Div Ex		KR 2000-2746	20000120
KR 414697 B		KR 2000-2746	20000120
TW 526386 A		TW 2000-101090	20000124
US 6528231 B1		US 2000-490627	20000124
US 20030194621 A1 Div Ex		US 2000-490627	20000124
US 6709804 B2 Div Ex		US 2000-490627	20000124
KR 2002092258 A		KR 2002-51314	20020829
KR 411757 B		KR 2002-51314	20020829
US 20030194621 A1		US 2003-368960	20030219
US 6709804 B2		US 2003-368960	20030219
JP 4258690 B2		JP 1999-147097	19990526

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
JP 4033426	B2	Previous Publ	JP 2000214585	A
KR 414697	B	Previous Publ	KR 2000076496	A
KR 411757	B	Previous Publ	KR 2002092258	A
US 20030194621	A1	Div ex	US 6528231	B
US 6709804	B2	Div ex	US 6528231	B
JP 4258690	B2	Previous Publ	JP 2000338668	A

PRIORITY APPLN. INFO: JP 1999-147097 19990526
JP 1999-15176 19990125

INT. PATENT CLASSIF.:

MAIN:	G03C0001-73; G03F0007-00; G03F0007-037; G03F0007-039
SECONDARY:	C08J0003-28; C08F0002-50; G03F0007-027
IPC ORIGINAL:	C08G0073-10 [I,A]; C08K0003-00 [I,C]; C08K0003-04 [I,A]; C08L0079-00 [I,C]; C08L0079-08 [I,A]; G03F0007-004 [I,A]; G03F0007-032 [I,C]; G03F0007-037 [I,A]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; C08G0073-00 [I,C]; G03F0007-004 [I,C]
IPC RECLASSIF.:	C08F0002-46 [I,C]; C08F0002-50 [I,A]; C08G0073-00 [I,C]; C08G0073-10 [I,A]; C08K0003-00 [I,C]; C08K0003-04 [I,A]; C08L0079-00 [I,C]; C08L0079-08 [I,A]; C09D0005-00 [I,A]; C09D0005-00 [I,C]; G03F0007-027 [I,A]; G03F0007-027 [I,C]; G03F0007-028 [I,A]; G03F0007-028 [I,C]; G03F0007-032 [I,C]; G03F0007-037 [I,A]; G03F0007-038 [I,A]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-038 [I,C]; H01L0021-02 [I,C]; H01L0021-027 [I,A]; H05K0001-00 [N,A]; H05K0001-00 [N,C]; H05K0001-02 [N,A]; H05K0001-02 [N,C]
ECLA:	G03F0007-038P
ICO:	T05K0001:00B2; T05K0001:02C2E; Y01N0006:00; Y01N0008:00

USCLASS NCLM: 430/018.000; 430/319.000
NCLS: 430/270.100; 430/281.100; 430/283.100; 430/288.100; 430/311.000; 430/325.000; 430/326.000; 430/915.000; 430/920.000; 522/031.000; 522/050.000; 522/053.000; 522/063.000; 522/070.000; 522/173.000

JAP. PATENT CLASSIF.:
MAIN/SEC.: C08G0073-10; C08K0003-04; C08L0079-08 A; C09D0005-00 C; G03F0007-004 503 Z; G03F0007-027 514; G03F0007-028; G03F0007-028 (ZNM); G03F0007-037 501; G03F0007-038 504; H01L0021-30 502 R
MAIN: G03F0007-037 501; G03F0007-038 504
SECONDARY: C08G0073-10; C08K0003-04; C08L0079-08 A; G03F0007-004 503 Z; H01L0021-30 502 R

FTERM CLASSIF.: 2H025; 2H125; 4J002; 4J038; 4J043; 5F046; 2H025/AA01; 2H025/AA02; 2H025/AA10; 2H025/AB15; 2H025/AB16; 2H025/AC01; 2H025/AD01; 2H025/BC01; 2H025/BC55; 2H025/BC69; 2H025/BC81; 2H025/BD25; 2H025/BD29; 2H025/BD33; 4J002/BL00.1; 2H025/CA00; 2H025/CA41; 4J002/CE00.1; 4J002/CM01.1; 4J002/CM04.1; 4J038/DJ02.1; 4J038/DJ03.1; 2H025/FA03; 2H025/FA17; 2H025/FA29; 4J002/FD15.6; 4J002/GQ05; 4J038/HA02.6; 4J038/NA14; 4J038/NA18; 4J043/PA02; 4J043/PA04; 4J038/PA17; 4J043/PA19; 4J038/PB09; 4J038/PC02; 4J038/PC03; 4J043/PC03.5; 4J043/PC03.6; 4J043/PC06.5; 4J043/PC06.6; 4J038/PC08; 4J043/PC11.5; 4J043/PC11.6; 4J043/PC16.5; 4J043/PC16.6; 4J043/PC18.5; 4J043/PC18.6; 4J043/QB15; 4J043/QB26; 4J043/QB31; 4J043/QB34; 4J043/RA35; 4J043/SA01; 4J043/SA02; 4J043/SA06; 4J043/SA31; 4J043/SA46; 4J043/SA49; 4J043/SA62; 4J043/SA64; 4J043/SA71; 4J043/SA72; 4J043/SA73; 4J043/SA77; 4J043/SA81; 4J043/SB01; 4J043/SB02; 4J043/TA01; 4J043/TA12; 4J043/TA15; 4J043/TA22; 4J043/TA47; 4J043/TB01; 4J043/TB02; 4J043/UA12.1; 4J043/UA12.2; 4J043/UA13.1; 4J043/UA13.2; 4J043/UA66.2; 4J043/UA67.2; 4J043/UB01.1; 4J043/UB01.2; 4J043/UB06.1; 4J043/UB06.2; 4J043/UB12.1; 4J043/UB13.1; 4J043/UB15.2; 4J043/UB28.1; 4J043/UB40.1; 4J043/UB40.2; 4J043/VA01.1; 4J043/VA02.1; 4J043/VA02.2; 4J043/VA04.1; 4J043/VA05.1; 4J043/VA06.1; 4J043/VA06.2; 4J043/VA08.1; 4J043/XA16; 4J043/YB07; 4J043/YB18; 4J043/YB19; 4J043/YB21; 4J043/YB31; 4J043/YB35; 4J043/YB37; 4J043/ZB22

BASIC ABSTRACT:
DE 10003011 A1 UPAB: 20090514
NOVELTY - A light-sensitive resin composition includes an oxygen sensitizer together with a cis-diene-substituted polyamic acid or polyimide containing specified structural units.
DETAILED DESCRIPTION - The composition includes an oxygen sensitizer together with a cis-diene-substituted polyamic acid or polyimide containing structural units from those of formulae (I)-(V); at least one of R1 - R20, R22-R25 and R26-R33 = a monovalent organic group with a cis-diene structure, while any other(s) = H, OH, carboxyl or 1-20C alkyl or alkoxy; R21, X1, X2 and Y1 = O, S or 1-4C alkylene, alkylidene or alkyleneoxy, with these values for X1, X2 and Y1 optionally being substituted;
Ar1 and Ar2 = a divalent aromatic group; and l1, l2, m1, m2 and n1 = 0 or 1, with the proviso that m1 =1 when l1 =1 and m2 = 1 when m2 = 0. INDEPENDENT CLAIMS are also included for the production of circuit boards, carriers for semiconductor chips and semiconductor devices.

USE - Claimed uses are in the production of circuit boards, carriers for semiconductor chips and semiconductor devices.

ADVANTAGE - The composition is of the negative type and has high sensitivity and good solubility, while forming layers of high heat-resistance. The amount of oxygen-sensitizer (especially expensive fullerene) is only 0.01-20 weight% of the polyamic acid or polyimide, compared to the economically disadvantageous use of 500 weight% required for light-sensitive compositions containing diazides as per JP2814174.

TECHNOLOGY FOCUS:

POLYMERS - Preferred composition: The cis-diene structure is a cyclopentadiene, furan, thiophene or pyrrole structure and the oxygen sensitizer is a fullerene.

ELECTRONICS - Preferred Processes : Production of the circuit boards and the carriers for semiconductor chips is by:

(a) coating a printed circuit carrier with the resin composition; and

(b) forming a thin conductive image by crosslinking the cis-diene groups by subsequent oxidation-polycondensation with singlet oxygen obtained by irradiating the sensitizer in presence of oxygen.

Production of the semiconductor devices is as above but with formation of fine patterns in step (b).

EXTENSION ABSTRACT:

EXAMPLE - A resin layer whose weight loss was only 0.5% on heating from room temperature to 300degreesC at 10degreesC/minute was obtained by: - (i) spin coating a silicon substrate with a solution of furfuryl-substituted polyamic acid (15g) (see below for preparation), fullerene (0.072g) and N-Me-2-pyrrolidone (100ml) and heating at 80degreesC for 10 minutes to form a dry 1.5 microns thick layer; - (ii) exposing to a 250W ultra-high pressure Hg lamp at 30cm for 30 minutes through a negative-type quartz photomask; and - (iii) developing with a 1 weight% aqueous tetramethyl ammonium hydroxide solution and heating at 200degreesC. - The substituted polyamic acid was obtained by: - (1) forming the polyamic acid from 2-OH-3-Me-1,4-phenylenediamine (5.41g) and pyromellitic dianhydride (8.55g) in N-Me-2-pyrrolidone (50ml); and - (2) reacting the diluted polyamic acid product with furfuryl bromide (7.7g) in presence of K2CO3 (6.5g) for 2 hours at 80degreesC with stirring to replace 85 mol.% of the OH groups in the diamine monomer units with furfuryl groups.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A05-J01B; A08-C01; A08-D01; A11-C02B; A12-E07C; A12-L02B2; G06-D06; G06-F03C; G06-F03D; L03-H04E1; L04-C22
EPI: U11-A06A

L38 ANSWER 6 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2000-379473 [200033] WPIX
TITLE: Photoresist monomer for manufacturing photoresist composition used for semiconductor device, comprises methanol derivative
DERWENT CLASS: A89; G06; L03; P84; U11
INVENTOR: BAEK G H; BAIK K H; CHUNG J C; CHUNG M H; JUNG J C; JUNG M H; KOH C W; LEE G S
PATENT ASSIGNEE: (HYNX-C) HYNIX SEMICONDUCTOR INC; (HYNX-C) HYUNDAI ELECTRONICS IND CO LTD
COUNTRY COUNT: 3

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2000122290	A	20000428	(200033)*	JA	22[0]	

```
          <--
      KR 2000026059   A  20000506 (200107)  KO
          <--
      US 6235447      B1 20010522 (200130)  EN
          <--
      KR 2000076577   A  20001226 (200134)  KO
          <--
      KR 400295       B  20040214 (200441)  KO
      KR 520167       B  20051010 (200680)  KO
      JP 4067251      B2 20080326 (200824)  JA  38

APPLICATION DETAILS:

      PATENT NO      KIND                  APPLICATION    DATE
      ------------------------------------------------------------------------
      JP 2000122290 A                      JP 1999-295656 19991018
      KR 2000026059 A                      KR 1998-43431 19981017
      KR 400295 B                          KR 1998-43431 19981017
      US 6235447 B1                        US 1999-418724 19991015
      KR 2000076577 A                      KR 2000-4811 20000201
      KR 520167 B                          KR 2000-4811 20000201
      JP 4067251 B2                        JP 1999-295656 19991018

FILING DETAILS:

      PATENT NO       KIND                  PATENT NO
      ------------------------------------------------------
      KR 400295       B     Previous Publ   KR 2000026059   A
      KR 520167       B     Previous Publ   KR 2000076577   A
      JP 4067251      B2    Previous Publ   JP 2000122290   A

PRIORITY APPLN. INFO: KR 1999-3650          19990204
                      KR 1998-43431         19981017
INT. PATENT CLASSIF.:
          MAIN:       G03F0007-027
   IPC ORIGINAL:      C07C0051-083 [I,A]; C07C0051-083 [I,C]; C07C0062-00
                      [I,C]; C07C0062-34 [I,A]; G03F0007-039 [I,A];
                      G03F0007-039 [I,C]
 IPC RECLASSIF.:      C07C0062-00 [I,C]; C07C0062-34 [I,A]; C08F0222-00
                      [I,C]; C08F0222-06 [I,A]; C08F0232-00 [I,C];
                      C08F0232-02 [I,A]; C08F0032-00 [I,C]; C08F0032-08
                      [I,A]; C08L0045-00 [I,A]; C08L0045-00 [I,C];
                      G03F0007-004 [N,A]; G03F0007-004 [N,C]; G03F0007-027
                      [I,A]; G03F0007-027 [I,C]; G03F0007-039 [I,A];
                      G03F0007-039 [I,C]
ECLA:                 C07C0062-34; C08F0032-08; G03F0007-039
ICO:                  S03F0007:004D
USCLASS NCLM:         430/270.100
        NCLS:         430/326.000; 526/271.000; 526/281.000; 562/498.000
JAP. PATENT CLASSIF.:
      MAIN/SEC.:      C07C0051-083; C07C0062-34; C08F0222-06; C08F0232-02;
                      C08L0045-00; G03F0007-039 601
          MAIN:       C07C0062-34
     SECONDARY:       C07C0051-083; G03F0007-039 601
    ADDITIONAL:       C08F0222-06; C08F0232-02; C08L0045-00
FTERM CLASSIF.:       2H025; 4H006; 4J002; 4J023; 4J024; 4J100; 2H025/AA01;
                      4H006/AA01; 4H006/AA02; 2H025/AA09; 2H025/AA14;
                      2H025/AC03; 2H025/AC04; 2H025/AC05; 2H025/AC08;
                      4H006/AC41; 4H006/AC46; 4J100/AK32.R; 4J100/AR11.P;
                      4J100/AR11.Q; 4J100/AR11.S; 4J100/AR31.P;
```

4J100/AR32.P; 4J100/AR32.Q; 4J100/AR32.S;
4J100/BA02.P; 4J100/BA03.P; 4J100/BA16.P;
4J100/BA20.Q; 4H006/BD60; 2H025/BE00; 2H025/BE07;
2H025/BE08; 2H025/BE10; 2H025/BF11; 2H025/BG00;
4H006/BJ30; 4J002/BK00.1; 4H006/BN10; 4H006/BP90;
4H006/BS20; 4J100/CA04; 4J100/CA05; 4J100/CA06;
2H025/CB06; 2H025/CB10; 2H025/CB41; 2H025/CB43;
2H025/CB45; 2H025/CC03; 4J100/DA01; 4J002/EE03.7;
4J002/EH02.7; 4J002/EW04.6; 4J002/EY00.6;
4J002/EY02.6; 4J100/FA03; 2H025/FA17; 4J100/FA19;
2H025/FA29; 4J002/FD20.6; 4J002/FD20.7; 4J002/GP00;
4J100/JA38

BASIC ABSTRACT:

JP 2000122290 A UPAB: 20091019

NOVELTY - The photoresist monomer is a methanol derivative of formula (I).

X1, X2 = CH2, CH2CH2, O or S; Y = CH2 or O;

R1 = H or CH3;

R', R'' = 0-3C alkyl group; i = 0-3.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(A) Manufacturing the monomer by dissolving a compound of formula HO-R'-Y-R''-OH (II) in an organic solvent. Then, a compound of (III) is added and both are reacted under acidic catalyst or basic condition. The organic solvent is removed from the resultant solution. The resultant solution is neutralized, extracted and recrystallized using an organic solvent. using an organic solvent.

(B) A photoresist copolymer. (C) Manufacturing the photoresist copolymer, by adding a polymerization initiator to monomer of formula (I), and one or more of a monomer of formula (IV), maleic anhydride and a monomer of formula (V) dissolved in an organic solvent and subjected to polymerization.

W1, W2, Z = CH2, CH2CH2 or O; R2, R3 = H or CH3;

R4 = acid sensitive protective group; j = 0-3

The resultant solution is added dropwise to a purification solvent and a pure solid matter is obtained. (D) A photoresist composition which contains the photoresist copolymer, photooxidation generating agent and an organic solvent. (E) Patterning the photoresist, where the photoresist composition is coated on a semiconductor device substrate to form a photoresist film. Then, the photoresist film is exposed and developed to form a pattern. (F) A semiconductor device.

USE - For manufacture of photoresist composition used for semiconductor device (claimed).

ADVANTAGE - The photoresist monomer has excellent adhesive property and sensitivity. The manufacture of pure photoresist monomer is enabled.

TECHNOLOGY FOCUS:

ORGANIC CHEMISTRY - Preferred Compounds: The compound of formula (II) is selected from ethylene glycol, 1,3-propane diol, 1,5-pentane diol and diethylene glycol. The compound of formula (III) is selected from 5-norbornene-2,3-dicarboxylic anhydride and exo-3,6-epoxy-1,2,3,6-tetrahydro phthalic anhydride. The organic solvent used in the manufacture is selected from tetrahydrofuran, dimethylformamide, dioxane, benzene, toluene, xylene, dimethyl sulfoxide and methyl ethyl ketone, preferably tetrahydrofuran, dimethylformamide, dioxane, benzene and toluene. The purification solvent used for recrystallization is selected from diethyl ether, methanol, ethanol, isopropanol and light petroleum. The polymerization initiator is selected from 2,2-azobisisobutyronitril (AIBN), acetyl peroxide, lauryl peroxide, benzoyl peroxide, t-butyl peroxide and t-butyl peracetate. The organic solvent in a photoresist composition is selected from cyclohexanone, methyl-3-methoxy propionate, ethyl-3-ethoxy propionate and propylene glycol methyl ether acetate. The acid sensitive

protective group is selected from t-butyl, 2-tetrahydrofuranyl and 2-tetrahydropyranyl. The monomer is e.g. 5-norbornene-2-carboxylic acid-3-(1,1-di(2-hydroxy ethoxy))-methanol, or oxabicyclo(2,2,1)-hept-5-en-2-carboxylic acid-3-(1,1-di(5-hydroxy pentyl oxy))-methanol.

Preferred Method: The amount of compounds (II) and (III) used are two or more equivalents. The basic condition is formed by adding sodium hydride, potassium hydride, calcium hydride, sodium carbonate, potassium carbonate or lithium diisopropylamide. The acidic catalyst is selected from sulfuric acid, nitric acid and acetic acid. The extracted solution is dehydrated using magnesium sulfate or sodium sulfate and distilled before recrystallization.

POLYMERS - Preferred Properties: The photoresist copolymer is of formula (VI).

a, b, c = number of monomeric units obtained from each monomer.

The photoresist copolymers is e.g. poly(5-norbornene-2-carboxylic acid-3-(1,1-di(2-hydroxy ethoxy))-methanol, or poly(oxa bicyclo(2,2,1))-hept-5-en-2-carboxylic acid-3-(1,1-di(2-hydroxy ethoxy))-methanol. The molecular weight of copolymer is 3000-100000. The ratio of a, b and c is 1-20 mol%:10-49 mol%:50 mol%. Alternately, photoresist copolymer is obtained by polymerizing maleic anhydride with comonomer of formulae (I), (IV) and (V).

INORGANIC CHEMISTRY - Preferred Agent: The photoresist composition contains 0.05-10 weight percent (weight%) of photooxidation generating agent and 200-1000 weight% of organic solvent. The photooxidation generating agents are e.g. diphenyl iodine salt hexafluoro phosphate, diphenyl iodine salt hexafluoro arsenate.

Preferred Method: During the formation of photoresist pattern, the photoresist film is baked at 70-200degreesC before and/or after exposure. The photoresist film is exposed to argon fluoride, potassium fluoride, electromagnetic beam, vacuum ultraviolet or X-ray with energy of 0.1-100 mJ/cm2.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A01-D08; A04-A; A04-F05; A08-M08; A10-E05; A10-E10; A11-B05; A12-E07C; A12-L02B2; G06-D06; G06-E04; G06-F03C; G06-G17; G06-G18; L04-C05
EPI: U11-A06A

L38 ANSWER 7 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1999-556221 [199947] WPIX
DOC. NO. CPI: C1999-162776 [199947]
DOC. NO. NON-CPI: N1999-412094 [199947]
TITLE: Photoresist composition for image formation - consists of phenylazo substituted aromatic carboxylic acid pigment, and crosslinking agent crosslinks composition when it is activated by photooxidation generator
DERWENT CLASS: A89; E19; G06; L03; P83; P84; U11
INVENTOR: GERALD; SZMANDA C R; TREFONAS P; VIZVARY G C
PATENT ASSIGNEE: (SHIL-C) SHIPLEY CO LLC
COUNTRY COUNT: 3

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 11242326 <--	A	19990907	(199947)*	JA	15[2]	

KR 99062754 A 19990726 (200043) KO [2]
<--
US 6110641 A 20000829 (200043) EN
<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 11242326 A		JP 1998-346207	19981204
US 6110641 A		US 1997-984855	19971204
KR 99062754 A		KR 1998-52734	19981203

PRIORITY APPLN. INFO: US 1997-984855 19971204
INT. PATENT CLASSIF.:
MAIN: G03F0007-00
IPC RECLASSIF.: C09B0029-00 [I,C]; C09B0029-14 [I,A]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03F0007-09 [I,A]; G03F0007-09 [I,C]; H05K0003-02 [N,C]; H05K0003-04 [N,A]
ECLA: G03F0007-038; G03F0007-09A
ICO: S03F0007:004D; T05K0003:04E2
JAP. PATENT CLASSIF.:
MAIN/SEC.: C09B0029-14; G03F0007-004 503 A; G03F0007-004 506; G03F0007-038 505
FTERM CLASSIF.: 2H025; 4H056; 2H025/AA03; 2H025/AB16; 2H025/AB17; 2H025/AC01; 2H025/AD01; 2H025/BE00; 2H025/BE08; 2H025/CB13; 2H025/CB17; 2H025/CB29; 2H025/CB42; 2H025/CC13; 2H025/CC17; 2H025/FA17; 2H025/FA44

BASIC ABSTRACT:
JP 11242326 A UPAB: 20050705
NOVELTY - The photoresist consists of an phenylazo substituted aromatic carboxylic acid as pigment. A crosslinking agent crosslinks with the composition when activated by a photooxidation generator which causes photolysis when activated radiation of wavelength 330-700 μm is exposed from an alkali soluble resin. The composition generates an acid during irradiation.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for coating method of the photoresist composition. The photoresist composition containing the pigment is coated on the surface of the substrate over which a metal is deposited. The photoresist coating is developed and image formed with retrograde property is developed. The metal deposited is washed away from the photoresist surface which is then exposed. The developed photoresist coating is dissolved.
USE - For image formation.
ADVANTAGE - The pigment dissolves well in the photoresist composition and there is no separation of an uneven phase in the photoresist coating. The composition has high absorptivity for the wavelength and hence there is no uneveness in the sensitization velocity throughout the coating. - DESCRIPTION OF DRAWING - The figure shows the photoresist containing the pigment. (1) Photoresist coating; (2) Substrate; (3) Deposited metal.

DOCUMENTATION ABSTRACT:
JP11242326
USE
For image formation.
ADVANTAGE
The pigment dissolves well in the photoresist composition and there is no separation of an uneven phase in the photoresist coating. The composition has high absorptivity for the wavelength and hence

there is no uneveness in the sensitization velocity throughout the coating.

NOVELTY

The photoresist consists of an phenylazo substituted aromatic carboxylic acid as pigment. A crosslinking agent crosslinks with the composition when activated by a photooxidation generator which causes photolysis when activated radiation of wavelength 330-700 μm is exposed from an alkali soluble resin. The composition generates an acid during irradiation.

DETAILED DESCRIPTION

An INDEPENDENT CLAIM is also included for coating method of the photoresist composition. The photoresist composition containing the pigment is coated on the surface of the substrate over which a metal is deposited. The photoresist coating is developed and image formed with retrograde property is developed. The metal deposited is washed away from the photoresist surface which is then exposed. The developed photoresist coating is dissolved.

DESCRIPTION OF DRAWING

The figure shows the photoresist containing the pigment. (1) Photoresist coating; (2) Substrate; (3) Deposited metal.

(SB)

SPECIFIC COMPOUNDS

The pigment is 2-(4-hydroxyphenylazo) benzoic acid.

ORGANIC CHEMISTRY

Preferred Substances: The photoresist contains a photooxidation generator of formula (I) or (II).

P = trihalomethyl group, phenyl or naphthyl, carbonate, primary amine, secondary amine, tertiary amine or alkoxide;

X = halogen;

n = 1-3;

Q = bromine or chlorine;

W = aromatic, heterocyclic ring of formula (III);

Z = oxygen or sulfur;

R1 = hydrogen, lower alkyl or phenyl.

Preferred Composition: The photoresist composition consists of 0.05-26 weight % or preferably 0.5-4 weight % of a pigment of purity 99.9%.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A08-D01; A12-L02B2; E21-B05; G06-D04; G06-F03C; G06-F03D; L03-H04E2; L04-C05
EPI: U11-A06A

L38 ANSWER 8 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1999-276954 [199923] WPIX
DOC. NO. CPI: C1999-081252 [199923]
DOC. NO. NON-CPI: N1999-207648 [199923]
TITLE: Photoresist composition
DERWENT CLASS: A13; A14; A18; A60; A84; A89; A92; G06; G08; L03; P84; U11
INVENTOR: ALLEN R D; DI PIETRO R A; GOODALL B L; JAYARAMAN S; RHODES L F; SHICK R A; WALLOW T; DIPIETRO R A
PATENT ASSIGNEE: (GOOR-C) GOODRICH CO B F; (IBMC-C) INT BUSINESS MACHINES CORP; (SUMB-C) SUMITOMO BAKELITE CO LTD; (IBMC-C) IBM CORP
COUNTRY COUNT: 78

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9914635	A1	19990325	(199923)*	EN	119[0]	

```
        <--
AU 9892199      A   19990405 (199933)  EN
        <--
EP 1021750      A1  20000726 (200037)  EN
        <--
CN 1276884      A   20001213 (200118)  ZH
        <--
KR 2001023940   A   20010326 (200161)  KO
        <--
JP 2001516804   W   20011002 (200172)  JA  121
        <--
AU 747516       B   20020516 (200244)  EN
        <--
RU 2199773      C2  20030227 (200325)  RU
        <--
TW 235285       B1  20050701 (200651)  ZH
CN 1251021      C   20060412 (200667)  ZH
KR 572899       B1  20060424 (200724)  KO
JP 4416941      B2  20100217 (201013)  JA  65
```

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9914635 A1		WO 1998-US18353	19980903
AU 9892199 A		AU 1998-92199	19980903
AU 747516 B		AU 1998-92199	19980903
CN 1276884 A		CN 1998-808966	19980903
CN 1251021 C		CN 1998-808966	19980903
EP 1021750 A1		EP 1998-944729	19980903
EP 1021750 A1		WO 1998-US18353	19980903
JP 2001516804 W		WO 1998-US18353	19980903
RU 2199773 C2		WO 1998-US18353	19980903
KR 572899 B1		WO 1998-US18353	19980903
TW 235285 B1		TW 1998-115292	19981023
JP 2001516804 W		JP 2000-512109	19980903
RU 2199773 C2		RU 2000-109327	19980903
KR 2001023940 A		KR 2000-702642	20000313
KR 572899 B1		KR 2000-702642	20000313
JP 4416941 B2	PCT Application	WO 1998-US18353	19980903
JP 4416941 B2		JP 2000-512109	19980903

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
AU 747516	B	Previous Publ	AU 9892199	A
KR 572899	B1	Previous Publ	KR 2001023940	A
AU 9892199	A	Based on	WO 9914635	A
EP 1021750	A1	Based on	WO 9914635	A
JP 2001516804	W	Based on	WO 9914635	A
AU 747516	B	Based on	WO 9914635	A
RU 2199773	C2	Based on	WO 9914635	A
KR 572899	B1	Based on	WO 9914635	A
JP 4416941	B2	Previous Publ	JP 2001516804	W
JP 4416941	B2	Based on	WO 9914635	A

```
PRIORITY APPLN. INFO: US 1997-928900        19970912
INT. PATENT CLASSIF.:
          MAIN:       C08F0032-00; G03F0007-004; G03F0007-039
```

SECONDARY: C08F0002-46; C08G0061-08
IPC ORIGINAL: C08F0002-46 [I,A]; C08F0002-46 [I,C]; C08F0032-00 [I,A]; C08F0032-00 [I,C]; C08G0061-00 [I,C]; C08G0061-08 [I,A]; G03F0007-039 [I,C]; G03F0007-039 [I,A]; G03F0007-039 [I,C]
IPC RECLASSIF.: C08F0002-46 [I,A]; C08F0002-46 [I,C]; C08F0032-00 [I,A]; C08F0032-00 [I,C]; C08G0061-00 [I,C]; C08G0061-08 [I,A]; G03F0007-004 [N,A]; G03F0007-004 [N,C]; G03F0007-039 [I,A]; G03F0007-039 [I,C]
ECLA: G03F0007-039
ICO: S03F0007:004D
JAP. PATENT CLASSIF.:
MAIN/SEC.: C08F0002-46; C08F0032-00; C08G0061-08; G03F0007-039 601
MAIN: G03F0007-039 601
SECONDARY: C08F0002-46; C08F0032-00; C08G0061-08
FTERM CLASSIF.: 2H025; 2H125; 4J011; 4J032; 4J100; 2H025/AA02; 2H025/AA09; 2H025/AB16; 2H025/AC08; 2H025/AD01; 2H025/AD03; 2H025/AD07; 4J100/AK32.Q; 4J100/AK32.R; 4J100/AR09.P; 4J100/AR09.Q; 4J100/BA04.P; 4J100/BA04.Q; 4J100/BA10.P; 4J100/BA10.Q; 4J100/BA12.P; 4J100/BA12.Q; 4J100/BA16.P; 4J100/BA16.Q; 4J100/BA20.P; 4J100/BA20.Q; 4J100/BA22.P; 4J100/BA22.Q; 4J100/BC03.P; 4J100/BC03.Q; 4J100/BC04.P; 4J100/BC04.Q; 4J100/BC09.P; 4J100/BC09.Q; 4J100/BC53.P; 4J100/BC53.Q; 4J100/BC58.P; 4J100/BC58.Q; 2H025/BE00; 2H025/BE10; 2H025/BG00; 2H025/BJ10; 4J100/CA01; 4J100/CA03; 4J100/CA04; 4J032/CA34; 4J032/CA43; 4J032/CA45; 2H025/CB08; 2H025/CB41; 4J032/CC03; 2H025/CC20; 4J032/CD02; 4J032/CD08; 4J100/JA38; 4J011/QA03; 4J011/QA34; 4J011/RA10; 4J011/RA11; 4J011/SA84; 4J011/SA87; 4J011/TA07; 4J011/UA01; 4J011/UA04; 4J011/WA01

BASIC ABSTRACT:

WO 1999014635 A1 UPAB: 20100222

NOVELTY - Photoresist compositions contain polycyclic polymers containing acid labile groups that are pendant from the polymer backbone.

DETAILED DESCRIPTION - A photoresist composition (I) comprises (A) a photoacid initiator (B) an optional dissolution inhibitor and (C) a copolymer comprising polycyclic repeating units of formulae (1) and (2) INDEPENDENT CLAIMS are included for the polycyclic polymer having a pendant perfluorophenyl group at at least one terminal end or containing repeat units polymerized from maleic anhydride. R1-R4 = R1 - R4 = H, 1-10C linear and branched alkyl, -(A)nC(O)ORasterisk, -(A)n-C(O)OR, -(A)n-OR, -(A)n-OC(O)R, -(A)n-C(O)R, -(A)n-OC(O)OR, -(A)n-OCH2C(O)ORasterisk, -(A)n-C(O)O-A'-OCH2C(O)ORasterisk, -(A)n-OC(O)-A'-C(O)ORasterisk, -(A)nC(R)2CH(R)(C(O)ORasteriskasterisk) or -(A)nC(R)2CH(C(O)ORasteriskasterisk)2. R5 - R8 = a polar substitutent consisting of 1-10C alkyl, -(An)-C(O)OR, -(A)n-OR, -(A)n-OC(O)R, -(A)n-OC(O)OR, -(A)n-C(O)R, -(A)n-OC(O)C(O)OR, -(A)n-O-A'-C(O)OR, -(A)n-O-C(O)-A'-C(O)OR, -(A)n-C(O)O-A'-C(O)OR, -(A)n-C(O)-A'-OR, -(A)n-C(O)O-A'-OC(O)C(O)OR, -(A)n-C(R)2CH(R)(C(O)OR) or -(A)n-C(R)2CH(C(O)OR)2. A, A' = a divalent radical consisting of 1-10C alkylene, 2-10C alkylene ether, polyether, cyclic diether or a = 2-7 n = 0 or 1 m, p = 0-5 R = R = H, 1-10C alkyl Rasterisk = an acid labile group of -C(CH3)3, -Si(CH3)3, -CH(Rp)OCH2CH3, -CH(Rp)OC(CH3)3 or group (i) - (vii).

Rp = H , 1-5C alkyl RasteriskRasterisk = R and Rasterisk At least one of R1 - R4 must be selected from a substituent containing the acid labile group.

R = 1-10C alkyl, 1-10C alkoxyalkylene, polyether, 4-20C mono- and polycyclic cycloaliphatic, cyclic ether, cyclic diether, cyclic ketone and cyclic ester.

When R is alkyl, lactone, cycloaliphatic or cyclic ketone -A- must be present and may not be alkylene.

USE - The photoresist composition (II) is useful for the manufacture of integrated circuits.

ADVANTAGE - The polycyclic polymers (I) are transparent to short wave length radiation and are resistant to reactive ion etching.

TECHNOLOGY FOCUS:

POLYMERS - Preferred Composition: The polycyclic polymer contains repeating units polymerized from one or more monomers of formulae (3) or (4). The monomers are polymerized by free radical ring-opening polymerisation to obtain a ring-opened polymer, preferably hydrogenated. The polymer is a ring opened polymer comprising repeating units of formula (5) or (6) and at least one repeating unit of formula (7) or (8). The polymer contains 5-100 (20-90), preferably 30-70 mole. % of repeating units containing acid labile groups. The polymer contains the repeating unit of formula (9).

R9 - R16 = H, 1-10C alkyl whereby at least one of R9-R12 is a carboxylic substitutent of -(CH2)nC(O)OH where n= 0-10 and q and r=0-5

EXTENSION ABSTRACT:

EXAMPLE - A catalyst solution (prepared by mixing nu3-allylpalladium chloride dimer (38 mg) in chlorobenzene (5 ml) with silver hexafluoro-antimonate (99 mg) in chlorobenzene (5 ml) for 30 minutes followed by filtering to remove precipitated silver chloride) was added to the t-butylester of 5-norbornene-carboxylic acid (2.0 g) at room temperature. After 36 hours the resulting gel was added to methanol to form a white precipitate. The polymer yield was 1.5 g (75%) and the presence of the ester bearing monomer verified by IR analysis. The polymer had a mol. weight of 22,500 and was stable up to 210 degreesC (loss of t-butyl group at 260 degreesC and polymer degradation at 400 degreesC.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A04-E10D; A04-F01; A08-M08; A12-E07C; A12-L02B2; G06-D06; G06-F03C; G06-F03D; L04-C05
EPI: U11-A06A

L38 ANSWER 9 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1996-130440 [199614] WPIX
DOC. NO. CPI: C1996-040723 [199614]
DOC. NO. NON-CPI: N1996-109664 [199614]
TITLE: Aromatic hydroxy-carboxylic acid resins, partial ester(s) and metal chelates - are useful in photoresist, as epoxy* resin hardener and in poly:valent metal chelate form as colour developer in pressure-sensitive copying system
DERWENT CLASS: A21; A26; A89; E14; G05; G06; L03; P75; P84; U11
INVENTOR: ISHIHARA H; ISHIHARA Y; KARASAWA A; YAMAGUCHI A; YAMAGUCHI K; YAMAGUCHI T
PATENT ASSIGNEE: (MITA-C) MITSUI CHEM INC; (MITK-C) MITSUI TOATSU CHEM INC; (MITK-C) MITSUI TOATSU KAGAKU KK
COUNTRY COUNT: 6

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
DE 19530545 <--	A1	19960229	(199614)*	DE	49[8]	
JP 08165335	A	19960625	(199635)	JA	29[8]	

```
          <--
      TW 292289       A  19961201 (199713)  ZH
          <--
      CN 1127763      A  19960731 (199750)  ZH
          <--
      US 5798422      A  19980825 (199841)  EN
          <--
      US 6040111      A  20000321 (200021)  EN
          <--
      KR 157185       B1 19981201 (200032)  KO
          <--
      CN 1296024      A  20010523 (200154)  ZH
          <--
      JP 3573535      B2 20041006 (200465)  JA  35
      CN 1066746      C  20010606 (200501)  ZH
          <--
```

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19530545 A1 19950819		DE 1995-19530545	
US 5798422 A		US 1995-511809	19950807
US 6040111 A Div Ex		US 1995-511809	19950807
JP 08165335 A		JP 1995-204456	19950810
JP 3573535 B2		JP 1995-204456	19950810
TW 292289 A		TW 1995-108322	19950810
CN 1127763 A		CN 1995-116310	19950825
CN 1296024 A Div Ex		CN 1995-116310	19950825
CN 1066746 C		CN 1995-116310	19950825
KR 157185 B1		KR 1995-26514	19950825
US 6040111 A		US 1997-993657	19971218
CN 1296024 A		CN 2000-127090	19950825

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 3573535 B2	Previous Publ	JP 08165335 A
US 6040111 A	Div ex	US 5798422 A

```
PRIORITY APPLN. INFO: JP 1994-247883       19941013
                      JP 1994-200836       19940825
                      JP 1994-200837       19940825
                      JP 1994-200838       19940825
INT. PATENT CLASSIF.:
           MAIN:      C08G0008-04
      SECONDARY:      C08G0008-20
 IPC RECLASSIF.:      B41M0005-155 [I,A]; B41M0005-155 [I,A]; B41M0005-155
                      [I,C]; B41M0005-155 [I,C]; C07C0065-00 [I,C];
                      C07C0065-105 [I,A]; C07C0065-24 [I,A]; C08G0061-00
                      [I,A]; C08G0061-00 [I,C]; C08G0061-00 [I,C];
                      C08G0061-02 [I,A]; C08L0063-00 [I,A]; C08L0063-00
                      [I,C]; G03F0007-022 [I,A]; G03F0007-022 [I,C];
                      G03F0007-023 [I,A]; G03F0007-023 [I,A]; G03F0007-023
                      [I,C]; G03F0007-023 [I,C]; G03F0007-039 [I,A];
                      G03F0007-039 [I,C]; H01L0021-02 [I,C]; H01L0021-027
                      [I,A]
ECLA:                 B41M0005-155; C07C0065-105; C07C0065-24; C08G0061-02;
```

C08L0063-00+B4Z; G03F0007-023P; G03F0007-023P2

JAP. PATENT CLASSIF.:
MAIN/SEC.: B41M0005-12 108; C08G0061-00; C08G0061-00 NLF; G03F0007-022; G03F0007-023 511; G03F0007-039; H01L0021-30 502 R

FTERM CLASSIF.: 2H025; 2H085; 4J032; 5F046; 2H025/AA01; 2H025/AA02; 2H085/AA07; 2H025/AB16; 2H025/AC01; 2H025/AD03; 2H085/BB35; 2H025/BE01; 4J032/CA04; 4J032/CA07; 4J032/CA12; 4J032/CA16; 4J032/CA18; 4J032/CB01; 4J032/CB04; 4J032/CB07; 2H025/CB10; 4J032/CB12; 2H025/CB14; 2H025/CB16; 2H025/CB17; 2H025/CB19; 2H025/CB28; 2H025/CB29; 4J032/CC01; 2H085/CC07; 4J032/CD00; 4J032/CD01; 4J032/CE03; 4J032/CE05; 4J032/CF03; 4J032/CG00

BASIC ABSTRACT:

DE 19530545 A1 UPAB: 20060111 Aromatic hydroxycarboxylic acid resins (I) of formula (A) are new. In the formulae, A = opt. substd. phenyl or naphthyl gps. having OH and COOH gps.; R1 = H or 1-4C alkyl; R2 = H, 1-10C alkyl, 1-10C alkoxy, NO2 or OH; l = 0-100; m = 0-20, provided that m is not = 0 if all rings A = phenyl gps.; n = 0-3. Also claimed are partial esters (II) of (I; m = 0-20); and a polyvalent metal-modified resin (III) obtd. by reacting (I) with a polyvalent metal cpd.

USE - (I; m = 0-20) or (II) is used in a photoresist compsn. (claimed), e.g. in the production of highly integrated circuits. (III) is used in a colour development sheet (claimed) for pressure-sensitive copying paper or intermediate for this. The resins are also useful as hardeners for epoxide resins.

ADVANTAGE - The photoresists have excellent sensitivity and resolution. The resins have moulding and processing properties. (III) also have excellent flexibility and resistance to oxidation and water.

DOCUMENTATION ABSTRACT:

DE19530545

Aromatic hydroxycarboxylic acid resins (I) of formula (A) are new. In the formulae, A = opt. substd. phenyl or naphthyl gps. having OH and COOH gps.; R1 = H or 1-4C alkyl; R2 = H, 1-10C alkyl, 1-10C alkoxy, NO2 or OH; l = 0-100; m = 0-20, provided that m is not = 0 if all rings A = phenyl gps.; n = 0-3.

Also claimed are partial esters (II) of (I; m = 0-20); and a polyvalent metal-modified resin (III) obtd. by reacting (I) with a polyvalent metal cpd.

USE

(I; m = 0-20) or (II) is used in a photoresist compsn. (claimed), e.g. in the production of highly integrated circuits. (III) is used in a colour development sheet (claimed) for pressure-sensitive copying paper or intermediate for this. The resins are also useful as hardeners for epoxide resins.

ADVANTAGE

The photoresists have excellent sensitivity and resolution. The resins have moulding and processing properties. (III) also have excellent flexibility and resistance to oxidation and water.

PREPARATION

(IA) and (IB) are prepared by reacting an aralkyl halide of the formula R2-C6H4-CH(R1)-X (X = halogen) with a salicylic or hydroxynaphthoic acid resin of formula (A; m = 0) in 0.001-10 molar ratio. (IC) is prepared by reacting (IV) with (VI) in 0.1-1.0 molar ratio.

EXAMPLE

498 pts. weight α,α'-dimethoxy-p-xylene were dripped in 5 min. into a mixture of 913 pts. weight methyl salicylate and 0.2 pt. weight CF3CO3H at 140-150 °C. The mixture was kept at 150 °C for 2 hrs., then worked up, giving 720 pts. weight resin (IE; 50.4% l = 0, 23.6% l = 1, 1.5% l = 2, 4.0% l = 3 or more, 0.5% other; Mn = 533). 100 pts. weight (IE), 33.5 pts. weight benzyl chloride, 400 pts. weight 1,1,2-trichloroethane and 0.4 pt. weight ZnCl2 were reacted 3 hrs. at 100 °C, then worked up, giving 121 pts. weight aralkylated salicylic acid resin (IF; Mn = 632; COOH equivalent = 249 g/equivalent). Filtered photoresist solns. of 17 pts. weight resin and 5 pts. weight photosensitiser (prepared from 0.44 mole 1,2-diazido-naphthoquinone- 4-sulphonyl chloride and 0.1 mole 4,4'-dihydroxybenzophenone) in 48 pts. weight ethylcellosolve acetate were spin coated on Si wafers in a thickness of 1.2 microns and baked 60 s at 100 deg. C. Sample (A) contained (IF), whilst the control (B) contained a m-cresol/2,3-xylenol/HCHO novolak resin (mol. weight = 8200). The wafers were exposed selectively with 436 nm radiation and developed 1 min. in 2% choline solution The standard film thickness (residual/initial thickness) was plotted against the log. exposure and the gradient (γ = tan θ) was determined. The gamma values were (A) 4.3, (B) 2.0.

PREFERRED RESINS

(I) is (IA) an aralkylated salicyclic acid resin (rings A = phenyl gps. with adjacent OH and COOH substits.; m = 1-20) with Mn = 450-20000 and a COOH equivalent of 245-440 g/equivalent; (IB) an aralkylated hydroxynaphthoic acid resin (rings A = naphthyl; m = 2-10) with Mn = 510-20000 and a COOH equivalent of 232-400 g/equivalent; (IC) a hydroxynaphthoic acid resin (l = 0-100; m = 0) with Mn = 500-50000 and a COOH equivalent of 240-288 g/equivalent; or (ID) a hydroxynaphthoic acid cocondensation resin with Mn = 370-50000, obtd. by reacting a hydroxynaphthoic acid (IV) with a hydroxybenzoic acid (V) (opt. with a 1-10C alkyl substit.) and a xylylene cpd. (VI) of the formula YCH2-C6H4-CH2Y (Y = halogen, OH or 1-4C alkoxy), using 0.1-1.0 mole (VI) per mole (IV) + (V) and a (IV):(V) molar ratio of 0.01-100).

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A05-A01B1; A05-J; A08-D; A10-E01; A12-D05A; A12-L02E; E10-E02F1; G05-D; G06-F03C; L04-C05
EPI: U11-A06A

L38 ANSWER 10 OF 10 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1994-167402 [199420] WPIX
DOC. NO. CPI: C1994-076736 [199420]
DOC. NO. NON-CPI: N1994-131737 [199420]
TITLE: Polymers substd. with aldehyde and/or carboxylic acid moieties - formed by selectively oxidising benzylic carbon atoms of polymer precursor using cobalt and catalyst
DERWENT CLASS: A13; A35; A60; E12; E32; G02; G03; G06; H01; H07; J01; J04; L03; U11; V04
INVENTOR: FERRARI L; LI P; SHAVER R T; STOVER H D H; VLAOVIC D
PATENT ASSIGNEE: (RESE-C) RESEARCH CORP TECHNOLOGIES INC
COUNTRY COUNT: 19

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC

```
      WO 9410215      A1 19940511 (199420)* EN  45[0]
            <--
      US 5376732      A  19941227 (199506)  EN  9[0]
            <--
      EP 666873       A1 19950816 (199537)  EN  [0]
            <--
      US 5468814      A  19951121 (199601)  EN  9
            <--
      JP 08503011     W  19960402 (199645)  JA  40[0]
            <--
      US 5753780      A  19980519 (199827)  EN
            <--

APPLICATION DETAILS:

      PATENT NO      KIND                  APPLICATION    DATE
      ------------------------------------------------------------------------
      WO 9410215 A1                        WO 1993-US10383 19931028
      US 5376732 A                         US 1992-968803 19921030
      US 5468814 A Div Ex                  US 1992-968803 19921030
      US 5753780 A Div Ex                  US 1992-968803 19921030
      EP 666873 A1                         EP 1993-925113 19931028
      EP 666873 A1                         WO 1993-US10383 19931028
      JP 08503011 W                        WO 1993-US10383 19931028
      JP 08503011 W                        JP 1994-511335 19931028
      US 5468814 A                         US 1994-306332 19940915
      US 5753780 A Div Ex                  US 1994-306332 19940915
      US 5753780 A                         US 1995-515784 19950816

FILING DETAILS:

      PATENT NO       KIND                  PATENT NO
      ------------------------------------------------------
      US 5468814 A          Div ex          US 5376732 A
      US 5753780 A          Div ex          US 5376732 A
      US 5753780 A          Div ex          US 5468814 A
      EP 666873 A1          Based on        WO 9410215 A
      JP 08503011 W         Based on        WO 9410215 A

PRIORITY APPLN. INFO: US 1992-968803       19921030
                      US 1994-306332       19940915
                      US 1995-515784       19950816
INT. PATENT CLASSIF.:
         MAIN:        C08F0008-06
 IPC RECLASSIF.:      C08F0008-00 [I,C]; C08F0008-06 [I,A]
ECLA:                 C08F0008-06
USCLASS NCLM:         525/388.000
       NCLS:          525/333.300; 525/367.000; 525/370.000
BASIC ABSTRACT:
     WO 1994010215 A1   UPAB: 20050507 Process for selectively oxidising benzylic C
     atoms in a precursor polymer containing benzylic C atoms comprises reacting
     oxygen with the precursor polymer in a solution comprising the precursor
     polymer and an effective amount of a catalyst for the oxidation, under
     conditions effective to oxidise at least a portion of the benzylic C atoms..
     Also claimed are the following: (i) a process for the oxidative cleaving of a
     polymer comprising reacting the polymer with oxygen in a solution with a
     catalyst for oxidative cleaving, under conditions effective to cleave the
     polymer into fragments and form in the fragments one or more functionality
     selected from aldehyde, ketone and carboxylic acid functionalities; and (ii)
     polymers formed by the above processes. USE/ADVANTAGE - The polymers may be
```

used as adhesives, compatibilisers, thermoplastic elastomers, lubricant dispersants and lubricant viscosity modifiers, stabiliser for liquid/liquid and solid/liquid emulsions and dispersions, antifouling agent, oil field flooding additives, chromatographic supports, ion exchange resins, flocculants, polymeric imaging agents and photoresists, polymeric coatings, films and membranes, and telechelic polymers and oligomers. The process provides good yield and rate, flexibility in the degree of oxidation and in the final MW achieved, avoids hazardous reagents and reaction conditions, and the operation is relatively easy and economic.

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: A10-E05; A10-E11; E05-L02B; E05-M; E33-B; E35-V; G02-A02B; G03-B02C; G06-D04; G06-F03C; H01-D06; H07-G03; H07-G07; J01-C03; J01-D03; J01-D04; J01-E03E; J04-B01C; L03-H04E2; L04-C05
EPI: U11-A06A; V04-R01A1

=> D L40 1-21 IFULL

L40 ANSWER 1 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2008-A94325 [200806] WPIX
CROSS REFERENCE: 2004-820215
DOC. NO. CPI: C2008-026518 [200806]
TITLE: New therapeutic hydroxamate-containing polymer is matrix metalloproteinase inhibitor useful in beads for slowing, preventing or reversing tissue remodeling and destruction, for controlling inflammation and for restricting cell migration
DERWENT CLASS: A11; A14; A96; B03; B04
INVENTOR: BROWN A; MAY M H; SEFTON M V; SKARJA G A
PATENT ASSIGNEE: (BROW-I) BROWN A; (MAYM-I) MAY M H; (SEFT-I) SEFTON M V; (SKAR-I) SKARJA G A
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20070160655	A1	20070712	(200806)*	EN	27[15]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20070160655	A1 CIP of	US 2003-420725	20030423
US 20070160655	A1	US 2007-714730	20070307

PRIORITY APPLN. INFO: US 2007-714730 20070307
US 2003-420725 20030423
INT. PATENT CLASSIF.:
IPC ORIGINAL: A61K0031-74 [I,C]; A61K0031-785 [I,A]; C08F0008-00 [I,C]; C08F0008-30 [I,A]
ECLA: A61K0031-785
USCLASS NCLM: 424/445.000
NCLS: 424/078.270; 525/327.600
BASIC ABSTRACT:
US 20070160655 A1 UPAB: 20080123
NOVELTY - Therapeutic polymer (I) containing a hydroxamate group is new.

DETAILED DESCRIPTION - Therapeutic polymer (I) containing a hydroxamate group of formula R1-C(=O)-N(OH)-R2, is new. R1 = linear, branched or crosslinked polymer or a linker connecting the hydroxamate to a polymer; and R2 = H, alkyl, alkyl halide, alkene, aryl, heteroaryl, amino acid, peptide, (oligo)ether, heterocyclic, polymer, polymerizable group, carboxylic acid, ester, amide, epoxide, ketone, aldehyde or alcohol for binding zinc-containing enzymes.

INDEPENDENT CLAIMS are included for: (1) a medical device for the inhibition of matrix metalloproteinases comprising (I); (2) a surface modified derivatizable polymer containing (I); and

(3) a wound care product comprising (I) incorporated into a substrate and a thermoreversible gel in which hydroxamate beads are incorporated.

ACTIVITY - Vulnerary.

MECHANISM OF ACTION - Matrix metalloproteinase inhibitor. The ability of (I) to inhibit matrix metalloproteinases (MMP) was tested using chromogenic substrate assay. The result showed that (I) exhibited MMP inhibition of 21-100%.

USE - (I) is useful as a wound care product. (I) is useful in beads for slowing, preventing or reversing tissue remodeling and destruction, for controlling inflammation and for restricting cell migration (all claimed).

ADVANTAGE - (I) has a higher affinity for binding the active forms of matrix metalloproteinases in comparison to the inactive form (claimed). (I) provides preferential binding to active forms of MMPs in the local tissue environment, because it specifically targets one stage in the MMP regulatory cascade, namely that directly preceding matrix degradation. (I) has improved bioavailability for a specific dose and a desired length of time. (I) is less toxic than the small, soluble MMP inhibitors and systemic toxicity is reduced because the inhibitor acts locally. (I) provides a more efficient and cost-effective for inhibiting matrix destruction. (I) is stable.

TECHNOLOGY FOCUS:

POLYMERS - Preparation (Claimed): Preparation of (I) comprises copolymerizing a monomer containing a hydroxamate group with a comonomer and surface modification of crosslinked polymethacrylic acid-co-methyl methacrylate beads. Preferred Components: (I) binds biological species containing divalent metal ions such as zinc-containing proteases and active or inactive forms of matrix metalloproteinases. (I) binds active forms of a matrix metalloproteinase in multi-protein physiologic solutions where the matrix metalloproteinase has been activated by a physiologic activator (reactive oxygen species released from activated inflammatory cells or proteolytic agent (e.g. proteolytic enzyme, plasminogen activator, matrix metalloproteinase, serine proteinase or bacterial proteinase)). The proteolytic enzyme is tissue-type plasminogen activator, urokinase type plasminogen activator, matrix metalloproteinase (MMP) 3, MMP-7, MMP-10, MMP-14, plasmin, trypsin, chymotrypsin or cathepsin G. The matrix metalloproteinase has been activated by a nonphysiologic activator, i.e. chemical reagent, such as organomercurial, sulfhydryl alkylating agent, disulfide compound, conformational perturbant or heavy metal ion (e.g. aminophenyl mercuric acetate, N-ethylmaleimide, oxidized glutathione, sodium dodecyl sulfate, sodium thiocyanate, Au(I) compound or Hg(II) compound). The derivatizable polymer is polymethacrylic acid-co-methyl methacrylate. (I) containing a derivatizable polymer with a hydroxamate containing group grafted. The graft consists of hydroxamate containing monomer units ranging 1-1000000 in number. The substrate is a dressing, a cream or an ointment. The gelable composition comprises a copolymer of formula A(B)n and a solvent.

A = soluble in the solvent such as polyethylene glycol

(preferred), polyvinyl pyrrolidone, polyvinyl alcohol, polyhydroxyethylmethacrylate or hyaluronic acid;

B = convertible between soluble and insoluble in the solvent depending on an environmental condition such as poly-N-isopropyl acrylamide (preferred), methyl celluloses, poly(ethylene glycol vinyl ether-co-butyl vinyl ether), polymers of N-alkyl acrylamide derivatives, poly(amino acids), poly(methacryloyl L-alanine methyl ester), poly(methacryloyl L-alanine ethyl ester) or nitrocellulose;

n = greater than 1 (preferably at least 4).

Preferred Process: The composition is convertible from liquid to gel under an environmental condition, where B is insoluble. The environmental condition is temperature (preferred), pH and/or ionic strength. The copolymer is present in the solvent at a level of 5-50 (preferably 10-25) weight%.

EXTENSION ABSTRACT:

EXAMPLE - Methacrylic acid monomer was dissolved in a suitable solvent (e.g. chloroform, diethyl ether) at 7% weight/vol and 0degreesC. A 4-methyl morpholine (20% molar) and chloroformate (25% molar) were added to the monomer solution with stirring. The reaction mixture was carried out at 0degreesC for 15 minutes, then the solution was filtered. The filtrate was added to a hydroxylamine (25% molar) in water solution and the combined solution. After completion of the reaction, a solution of sodium hydroxide was added to the reaction mixture. The aqueous layer was then separated from the organic phase and extracted three times with fresh organic solvent. The aqueous raw monomer solution was dried in a freeze-dryer, leaving a white tacky solid. The raw product was worked up to give hydroxamate monomer.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A10-E01; A12-V01; B04-C02A2; B04-C02A3; B04-C02E; B04-C03; B04-N04; B14-C03; B14-D07C1; B14-N17B

L40 ANSWER 2 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2007-475263 [200746] WPIX
CROSS REFERENCE: 2002-010530; 2003-896910
DOC. NO. CPI: C2007-173225 [200746]
DOC. NO. NON-CPI: N2007-361168 [200746]
TITLE: Attaching a ligand e.g. protein to a polymer surface useful in micropatterning of biomolecules involves contacting a surface of amphiphilic comb polymer having reactive moiety with a substrate having reactive ligand to form a covalent bond
DERWENT CLASS: A96; B04; B07; D16; D22; P34; S03
INVENTOR: CHILKOTI A; HYUN J; YANG Z
PATENT ASSIGNEE: (CHIL-I) CHILKOTI A; (HYUN-I) HYUN J; (YANG-I) YANG Z
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20070087114	A1	20070419	(200746)*	EN	46	[28]

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20070087114	A1 CIP of	US 2000-519038	20000303
US 20070087114	A1 Div Ex	US 2002-176366	20020620

US 20070087114 A1 US 2006-583232 20061019

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
US 20070087114	A1	CIP of	US 6444254	B
US 20070087114	A1	Div ex	US 7163712	B

PRIORITY APPLN. INFO: US 2006-583232 20061019
US 2000-519038 20000303
US 2002-176366 20020620

INT. PATENT CLASSIF.:
IPC ORIGINAL: A61L0033-00 [I,A]; A61L0033-00 [I,C]
ECLA: A61L0027-34; A61L0027-50; A61L0027-54
USCLASS NCLM: 427/002.100

BASIC ABSTRACT:

US 20070087114 A1 UPAB: 20070719

NOVELTY - Attaching (M1) a ligand to a surface, involves: (a) contacting a surface having an amphiphilic comb polymer having a first reactive moiety attached to it with a substrate having at least one ligand comprising a second reactive moiety, where the second reactive moiety of the ligand and the first reactive moiety of the amphiphilic comb polymer form a covalent bond; and (b) separating the substrate from the surface, thereby leaving the ligand covalently bound to the amphiphilic comb polymer.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a device comprising at least one surface having a ligand bound to it according to method (M1).

USE - For attaching a biological ligand e.g. protein or nucleic acid to a surface of an amphiphilic comb polymer (claimed), for micropatterning of biomolecules on surfaces, useful in e.g. modulation of cell-substrate interactions in biomaterials, tissue engineering, and in fabrication of multi-analyte biosensors and genomic arrays.

ADVANTAGE - The method is reliable and provides patterning of biological ligands directly on polymer surfaces; renders the surface biologically nonfouling; and the resulting pattern has good reproducibility. The biomolecule is bound to the surface by a stable covalent bond. The method provides spatial control of ligand preservation on the surface of commonly used polymeric biomaterials. TECHNOLOGY FOCUS:

BIOTECHNOLOGY - Preferred Method: The surface is a polymer surface. The ligand is a biological ligand. The substrate is a stamp, and at least one ligand is attached to a surface of the stamp. The amphiphilic comb polymer is physically bound to the ligand. The substrate comprises at least one well and an aqueous solution is present in the well comprises the at least one ligand. The substrate is configured to provide a pattern of the at least one ligand on the surface. The pattern has dimension of 0.1 - 500 microns.

The first and the second reactive moiety is selected from amine groups, thiol groups, sulfide groups, disulfide groups, silane groups, chlorosilane groups, carboxylic acids, nitrite groups, isonitrile groups, hydroxamic acids, acid chlorides, anhydrides, sulfonyl groups, phosphoryl groups, azo groups, diazo groups, isothiocyanate, vinyl sulfone, N-hydroxysuccinimide (NHS) ester, haloacetamides, maleimide, anhydride, alkene, or hydroxyl groups.

The ligand is cytophilic and is selected from small biological molecules, proteins, peptides, nucleic acids, lipids, saccharides, oligosaccharides, carbohydrates, lipopolysaccharide, lipoprotein,

peptide nucleic acids (PNA), ribozymes, DNA or PNA aptamer; or biotin; or the ligand is a synthetic polymer or a biological polymer.

The surface is configured as a flat surface or a curved surface. The stamp is an elastomeric stamp (preferably poly(dimethylsiloxane) (PDMS) stamp. The stamp is plasma oxidized or chemically oxidized, prior to the step (a) of contacting. Several ligands are adsorbed on the stamp in a pattern, and the pattern of ligands is covalently bound to the surface after the separating step.

The method further involves binding another ligand to the ligand covalently bound to the surface after the separating step (b). The other ligand is streptavidin, and the ligand, covalently bound to the surface after the separating step, is biotin. The method involves depositing at least one ligand to the polymer surface prior to the step (a) of contacting the surface with a substrate. The ligand is deposited by adsorption from a solution. The surface has a third reactive moiety attached to it and the ligand has a fourth reactive moiety attached to it, where the fourth reactive moiety of the ligand and the third reactive moiety of the surface form a covalent bond.

POLYMERS - Preferred Components: The amphiphilic comb polymer comprises a backbone formed of a hydrophobic water-insoluble polymer and at least one side chain formed of a hydrophilic polymer. The hydrophobic water-insoluble polymer is a biodegradable polymer.

The biodegradable polymer is selected from poly(amino acids), poly(anhydrides), poly(orthoesters), poly(phosphoesters), polylactones, poly(sebacate), poly(hydroxy acids), their copolymers and/or mixtures.

The hydrophobic water-insoluble polymer is a non-biodegradable polymer. The non-biodegradable polymer is selected from polyalkylenes, polyvinyl ethers, polyvinyl esters, polysiloxanes, polystyrene, polyurethanes, polyacrylates, polyacrylamides, their copolymers and/or mixtures.

The hydrophilic polymer is formed from polymeric blocks selected from poly(ethylene glycol), poly(ethylene oxide), poly(propylene glycol), poly(propylene oxide), partially or fully hydrolyzed poly(vinyl alcohol), poly(vinylpyrrolidone), dextran, or their mixtures and/or copolymers.

The surface is the surface of a polymer selected from poly(ethylene terephthalate) (PET), polystyrene (PS), polycarbonate (PC), poly(epsilon-caprolactone) (PECL or PCL), poly(methyl methacrylate) (PMMA), poly(lactic acid) (PLA), polydimethylsiloxane (PDMS), polybutadiene (PB), polyvinylalcohol (PVA), fluorinated polyacrylate (PFOA), poly(ethylene-butylene) (PEB), poly(tetrafluoroethylene), and poly(styrene-acrylonitrile)-(SAN) (preferably poly(dimethylsiloxane) (PDMS) stamp).

The second reactive moiety of the ligand is linked to the ligand by a spacer. The spacer is an ethylene glycol oligomer.

EXTENSION ABSTRACT:

EXAMPLE - Poly(ethylene terephthalate) (PET) films were cleaned in hexane and acetone, and dried under nitrogen. The cleaned PET films were hydroxylated by immersion in formaldehyde/acetic acid (1 M) (18.5 volume/volume%) for 4 hours

at room temperature. The films were reacted with bromoacetic acid (1 M)/NaOH (2 M) overnight, to convert the hydroxyl groups to carboxylic acid on the PET surface (PET-COOH). The PET films were activated by immersion in an ethanol solution of 1-ethyl-3-(dimethylamino)propylcarbodiimide (EDAC) (0.1 M) and pentafluorophenol (PFP, 0.2 M) for 15 minutes to obtain activated PET-COOH films used as surface. The masters used to cast the poly(dimethylsiloxane) (PDMS) stamps were fabricated on polished silicon wafers using AZ P4620 (RTM: photoresist), which was spin coated to a thickness of 5 microns and processed by contact photolithography. Elastomeric stamps were fabricated by casting PDMS against the photoresist on silicon masters with sizes of 10 microns2, and were subsequently oxidized in an air plasma (150 mtorr, 40 W, 1 minute) in a plasma reactor, prior to use. The ligand (+)-biotinyl-3,6,9,-trioxaundecanediamine (biotin-amine) was printed by contacting a plasma-oxidized PDMS stamp, inked with biotin-amine in ethanol (10 mM), with the activated PET-COOH surface for 10 minutes. Flat, plasma oxidized PDMS stamps were used to print biotin-amine. Unreacted pentafluorophenyl esters were inactivated by reaction with 2-(2-aminoethoxy)ethanol (10 mM) and sodium bicarbonate (0.1 M, pH 8.3) for 20 minutes. The samples were cleaned with ethanol in an ultrasonic bath for 5 minutes, rinsed with distilled water, and dried to obtain biotin-amine-printed stamps. After printing biotin-amine on PET-COOH with a PDMS stamp, the surface was incubated with Alexa 488 (RTM: labeled streptavidin) in HEPES buffered saline (0.1 muM) (pH 7.4) containing BSA (0.1 weight/volume%) and Tween 20 (RTM: detergent) (0.02 volume/volume%) for one hour, to obtain biotin-derivatized micropatterned PET-COOH polymer surface with streptavidin micropatterns. The spatial distribution of labeled-streptavidin on the micropatterned biotin on PET-COOH surface was examined with fluorescence microscopy, and it was observed that there was successful localization of streptavidin on the biotin pattern printed on PET-COOH polymer surfaces.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A10-E01; A12-V00V; A12-W11L; B04-C01; B04-C02; B04-C03; B04-D01; B04-E05; B04-E07A; B04-E10; B04-N04; B04-N05; B06-F03; B11-C01A3; B11-C04G; B11-C08E6; B12-K04F; D05-H09; D05-H10; D09-C01E
EPI: S03-E03C1

L40 ANSWER 3 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2005-477565 [200548] WPIX
DOC. NO. CPI: C2005-145497 [200548]
DOC. NO. NON-CPI: N2005-388741 [200548]
TITLE: Optical recording material useful in e.g. optical device e.g. holography and two-photon optics comprises polymeric matrix, dewarbenzene derivative reactant and sensitizer
DERWENT CLASS: A89; E19; L03; T03
INVENTOR: DINNOCENZO J P; FARID S Y; FERRAR L; MERKEL P B; MIS M R; ROBELLO D R; ROH Y
PATENT ASSIGNEE: (DINN-I) DINNOCENZO J P; (FARI-I) FARID S Y; (FERR-I) FERRAR L; (MERK-I) MERKEL P B; (MISM-I) MIS M R; (ROBE-I) ROBELLO D R; (ROHY-I) ROH Y; (EAST-C) EASTMAN KODAK CO
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20050136357	A1	20050623	(200548)*	EN	27[0]	
US 7459263	B2	20081202	(200882)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20050136357 A1	Provisional	US 2003-531514P	20031219
US 20050136357 A1		US 2004-944580	20040917

PRIORITY APPLN. INFO: US 2004-944580 20040917
US 2003-531514P 20031219

INT. PATENT CLASSIF.:
IPC ORIGINAL: G11B0007-24 [I,A]; G11B0007-24 [I,C]
IPC RECLASSIF.: G11B0007-00 [N,A]; G11B0007-00 [N,C]; G11B0007-24 [I,A]; G11B0007-24 [I,C]; G11B0007-245 [I,A]
ECLA: G11B0007-245
ICO: S11B0007:00S4
USCLASS NCLM: 430/270.110
NCLS: 369/283.000; 369/284.000; 428/064.800; 430/945.000

BASIC ABSTRACT:

US 20050136357 A1 UPAB: 20051223

NOVELTY - An optical recording material comprises: a polymeric matrix (a); a dewarbenzene derivative reactant (b) capable of undergoing isomerization to a benzene product upon triplet excitation, thus causing a change in optical properties; and a sensitizer (c) capable of absorbing actinic radiation to cause triplet energy transfer to the reactant.

DETAILED DESCRIPTION - An optical recording material comprises: a polymeric matrix (a); a dewarbenzene derivative reactant (b) capable of undergoing isomerization to a benzene product upon triplet excitation, thus causing a change in optical properties; and a sensitizer (c) capable of absorbing actinic radiation to cause triplet energy transfer to the reactant. The algebraic sum of the excitation energy of (c) and its reduction potential is at least 0.05 eV less than the oxidation potential of (b), thus precluding one-electron oxidation of the reactant.

An INDEPENDENT CLAIM is included for an optical device comprising (b), a dewarbenzene product, and a triplet sensitizer in (a). There are regions of varying concentrations of reactant and product corresponding to an optical pattern of intelligence that may be detected with light. (b) is capable of undergoing isomerization to the product upon triplet excitation, thus producing the pattern of intelligence.

USE - As optical recording material in an optical device (claimed) such as optical data recording systems e.g. holography and two-photon optics and compact disk (CD) and digital video disk (DVD).

ADVANTAGE - The materials are simple, stable polymers and can be conveniently fabricated into films and slabs. The optical changes in the material are large, permanent, localized and can easily be detected forming the basis for an optical storage medium. The optical recording material provides higher diffraction efficiencies and requires lower exposures than similar elements or devices of the prior art. The optical recording material can record information depth-wise, rather than just on the surface and with a high quantum efficiency to minimize exposure time and/or light intensity and does not change dimensions upon recording.

TECHNOLOGY FOCUS:

IMAGING AND COMMUNICATION - Preferred Material: The overall quantum yield of the sensitized isomerization is at least 2. The optical recording material further comprises a triplet cosensitizer with a triplet energy of 45 - 72 kcal/mole that absorbs less than 10 % of the actinic radiation absorbed by (c); a plasticizer, a support and a protective overcoat layer. The cosensitizer is covalently attached to (a). The optical recording material comprises (weight%) (b) (2 - 80), (c) (0.002 - 20 or 0.01 - 90) and the cosensitizer (1 - 90). (c) Has a triplet energy of at least 45

kcal/mole (preferably not more than 4 kcal/mole below the triplet energy of (b)) and an intersystem crossing quantum yield of at least 0.2. The cosensitizer has a triplet energy of 4 kcal/mole above the triplet energy of (c) and 4 kcal/mole below the triplet energy of (b). The change in optical properties comprises a change in refractive indices.

Preferred Device: The optical device further comprises the plasticizer; the support; the protective overcoat layer, an overcoat layer comprising an absorber material that absorbs light in the same wavelength region as the sensitizer, a sensitizer covalently attached to the polymeric matrix and a triplet cosensitizer covalently attached to the polymeric matrix. The pattern of intelligence comprises a pattern of refractive indices and is detected using wavelengths of light different than those comprising said actinic radiation absorbed by said sensitizer.

POLYMERS - Preferred Components: (a) Is formed by in-situ polymerization. (a) Comprises poly(alkyl methacrylate), poly(alkyl acrylate), polystyrene, polycarbonate, cellulose acetate, cellulose acetate butyrate or poly(vinyl butyral) or poly(vinylnaphthoate), poly(naphthylacrylate) or poly(vinylnaphthalene).

ORGANIC CHEMISTRY - Preferred Components: (b) and (c) are covalently attached to (a). (b) Comprises a dewarbenzene derivative substituted with at least one of ester, amide, or aryl groups and is a group of formulae (Ia). The cosensitizer comprises a naphthalene derivative (preferably naphthalene-1-carboxylic acid ethyl ester, naphthalene-1-carboxylic acid methyl ester, naphthalen-2-yl-acetic acid methyl ester, naphthalene-2,6-dicarboxylic acid diethyl ester, naphthalene-1,4-dicarboxylic acid dimethyl ester, naphthalene-1-carbonitrile, naphthalene-1-carboxylic acid 2-(2-methyl-acryloyloxy)-ethyl ester or 2-methyl-acrylic acid 2-naphthalen-1-yl-ethyl ester).

(c) comprises a ketocoumarin, xanthone, thioxanthone, or benzophenone derivative. The polymeric matrix is derived from monomers comprising reactants of formula (Ib); sensitizer selected from 9-Oxo-9H-thioxanthene-2-carboxylic acid 2-(2-methyl-acryloyloxy)-ethyl ester; and cosensitizer selected from naphthalene-1-carboxylic acid 2-(2-methyl-acryloyloxy)-ethyl ester and 2-methyl-acrylic acid 2-naphthalen-1-yl-ethyl ester.

T = R2, -CO2R2, CON(R2)2 or phenyl substituted by R7;

R1,R2 = optionally substituted alkyl, phenyl or naphthyl groups;

R3-R7 = hydrogen atoms or alkyl groups;

E = -CH3 or -CO2CH3.

EXTENSION ABSTRACT:

SPECIFIC COMPOUNDS - 7 Compounds are specifically claimed as (b) e.g. dimethyl tetramethyldewarbenzene dicarboxylate of formula (ia). 10 Compounds are specifically claimed as (c) e.g. 3-benzoyl-7-methoxy-chromen-2-one of formula (ib). EXAMPLE - A film was prepared by coating a solution containing dimethyl tetramethyldewarbenzene dicarboxylate (150 mg), 3-benzoyl-7-methoxy-chromen-2-one (120 mg), naphthalen-2-yl-acetic acid methyl ester (80 mg) and poly(methyl methacrylate) (PMMA) (1 g) in dichloromethane (4 ml). The film was air-dried for 15 minutes and then at 40 degrees C for 4 hours. (S-4) was coated at a much higher level. The optical density at 405 nm was 0.5. Film samples were irradiated for 20 seconds and for 1, 2, 4 and 5 minutes at 405 nm using filtered light from a high pressure Mercury lamp. The irradiated films were then extracted with tetrahydrofuran and analyzed by high performance liquid

chromatography (HPLC). The intensity of the irradiation light was measured using phenanthrenequinone/stilbene actinometry to determine absolute quantum yields. The quantum yield at 34 % conversion (20 seconds irradiation) was determined to be 8, and %conversion at 5 minutes irradiation was 98 %, illustrating the high efficiency of the triplet chain isomerization process.

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: A04-F06E; A08-P01; A10-E01; A12-L03C; E06-A01; E06-A03; E06-B02; E06-D13; E10-A15F; E10-B04A2; E10-D03D; E10-G02F1; E10-G02F2; E10-J02A2; L03-G04B
EPI: T03-B01B1A; T03-B01D1; T03-B12

L40 ANSWER 4 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2005-142276 [200515] WPIX
DOC. NO. CPI: C2005-046345 [200515]
TITLE: Polyurethane-polymer hybrid dispersion based on an optionally functional polyurethane-polymer hybrid with optionally fluorinated side chains, used for water- and oil-proof surface coating, e.g. of building materials and metals
DERWENT CLASS: A25; A81; A82; A93; G02; G03; G04
INVENTOR: INGRISCH S; MAIER A; STEIDL N; WEINELT F
PATENT ASSIGNEE: (CSRE-N) CONSTR RES & TECHNOLOGY GMBH; (INGR-I) INGRISCH S; (MAIE-I) MAIER A; (STEI-I) STEIDL N; (WEIN-I) WEINELT F
COUNTRY COUNT: 107

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2005007762	A1	20050127	(200515)*	DE	46[0]	
DE 10331484	A1	20050303	(200517)	DE		
EP 1656428	A1	20060517	(200634)	DE		
US 20060189750	A1	20060824	(200656)	EN		
US 7265178	B2	20070904	(200759)	EN		
JP 2009513749	W	20090402	(200926)	JA	28	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005007762	A1	WO 2004-EP7592	20040709
DE 10331484	A1	DE 2003-10331484	20030711
EP 1656428	A1	EP 2004-740871	20040709
US 20060189750	A1	US 2004-563903	20040709
US 7265178	B2	US 2004-563903	20040709
EP 1656428	A1	WO 2004-EP7592	20040709
US 20060189750	A1	WO 2004-EP7592	20040709
US 7265178	B2	WO 2004-EP7592	20040709
JP 2009513749	W PCT Application	WO 2004-EP7592	20040709
JP 2009513749	W	JP 2006-519842	20040709

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 1656428	A1 Based on	WO 2005007762 A

US 7265178	B2	Based on	WO 2005007762	A
JP 2009513749	W	Based on	WO 2005007762	A

PRIORITY APPLN. INFO: DE 2003-1033148A 20030711

INT. PATENT CLASSIF.:

IPC ORIGINAL:	C08F0283-00 [I,A]; C08F0008-00 [I,C]; C08F0008-30 [I,A]; C08G0018-00 [I,C]; C08G0018-08 [I,A]; C08G0018-08 [I,A]; C08J0003-00 [I,A]; C08J0003-00 [I,C]; C08K0003-00 [I,C]; C08K0003-20 [I,A]; C08L0031-00 [I,A]; C08L0031-00 [I,C]; C08L0075-00 [I,A]; C08L0075-00 [I,C]; C08L0075-00 [I,C]; C08L0075-04 [I,A]; C08L0083-00 [I,A]; C08L0083-00 [I,C]; C08L0083-07 [I,A]; C09C0003-10 [I,A]; C09C0003-10 [I,C]; C09D0175-04 [I,A]; C09D0175-04 [I,A]; C09D0175-04 [I,C]; C09D0005-00 [I,A]; C09D0005-00 [I,C]; C09D0005-02 [I,A]; C09D0005-02 [I,C]; C09D0005-08 [I,A]; C09D0005-08 [I,C]; C09D0005-16 [I,A]; C09D0005-16 [I,C]; C09J0175-04 [I,A]; C09J0175-04 [I,C]; C09K0003-10 [I,A]; C09K0003-10 [I,C]
IPC RECLASSIF.:	C08F0283-00 [I,A]; C08F0283-00 [I,C]; C08F0289-00 [I,A]; C08F0289-00 [I,C]; C08G0018-00 [I,C]; C08G0018-08 [I,A]; C08G0018-28 [I,A]; C08L0051-00 [I,C]; C08L0051-08 [I,A]; C09D0151-08 [I,A]; C09D0151-08 [I,C]; C09D0175-04 [I,A]; C09D0175-04 [I,C]; C09J0151-00 [I,C]; C09J0151-08 [I,A]
ECLA:	C08F0283-00; C08F0283-00B; C08F0289-00; C08G0018-08B6; C08G0018-28D8C; C08L0051-08+B; C09D0151-08+B; C09D0175-04; C09J0151-08+B
USCLASS NCLM:	524/507.000; 524/589.000
NCLS:	427/372.200; 427/385.500; 428/423.100; 524/457.000; 524/588.000; 524/591.000; 524/837.000; 524/839.000; 524/840.000; 525/123.000; 525/455.000

JAP. PATENT CLASSIF.:

MAIN/SEC.:	C08L0031-00; C08L0075-04; C08L0083-07; C09C0003-10; C09D0175-04; C09D0005-00 D; C09D0005-02; C09D0005-08; C09D0005-16; C09J0175-04; C09K0003-10 D
MAIN:	C08L0075-04
SECONDARY:	C08L0031-00; C08L0083-07; C09C0003-10; C09D0175-04; C09D0005-00 D; C09D0005-02; C09D0005-08; C09D0005-16; C09J0175-04; C09K0003-10 D
FTERM CLASSIF.:	4H017; 4J002; 4J037; 4J038; 4J040; 4H017/AA03; 4H017/AA31; 4H017/AB01; 4H017/AB04; 4H017/AB12; 4H017/AC17; 4H017/AE03; 4J002/BG02.X; 4J002/BG03.X; 4J002/BG06.X; 4J002/BG08.X; 4J037/CC26; 4J002/CK02.W; 4J002/CP16.X; 4J038/DG18.1; 4J038/DG19.1; 4J038/DG32.1; 4J037/EE02; 4J040/EF17.1; 4J040/EF18.1; 4J040/EF35.1; 4J038/GA01; 4J040/GA01; 4J040/GA03; 4J038/GA12; 4J038/GA15; 4J040/GA31; 4J002/GH01; 4J002/GH02; 4J002/HA07; 4J038/JB16; 4J038/KA03; 4J040/MA06; 4J038/MA08; 4J038/MA10; 4J038/NA03; 4J038/NA05; 4J038/PB05; 4J038/PB07; 4J038/PC03; 4J038/PC09

BASIC ABSTRACT:

WO 2005007762 A1 UPAB: 20090430

NOVELTY - Polyurethane-polymer hybrid dispersions, obtained by making a dispersion component (binder) based on an aqueous solution or dispersion of an optionally hydroxy- and/or amino-functional polyurethane-polymer hybrid with optionally fluorinated side chains and then optionally reacting this with an isocyanate crosslinker.

DETAILED DESCRIPTION - Polyurethane (PUR)-polymer hybrid dispersions (I), obtained by (a) making a dispersion component or binder component based on an aqueous solution or dispersion of an optionally hydroxy- and/or amino-functional PUR- polymer hybrid with optionally fluorinated side chains, which involves (a1) mixing 5-100 parts by weight (pts. weight) anionically-stabilised polyurethane base dispersion (A) (optionally with fluoro side chains, preferably with an ideally linear structure, a polymer-bonded fluorine content of 0-5 wt%, an OH number and/or amine number of 0-250 mg KOH/g, a solid content of 20-60 wt%, a solvent content of 0-20 wt% and an average mol. weight of 5000-100000) with a mixture of 3-300 pts. weight of a monomer component (B), 0.01-10 pts. weight lipophilic radical initiator(s) (C) (with 1 or more thermally-labile azo or peroxide groups) and 0-200 pts. weight water and (a2) carrying out radical polymerisation (by thermal decomposition of C) within the micelles of the di spersion (A), and then (b) optionally reacting the product from (a2) with 20-100 pts. weight of a crosslinker (D) (hardener) consisting of water-dispersible aliphatic, cycloaliphatic and/or aromatic polyisocyanates (optionally as used in paint), which may also contain 0-25 wt% organic solvent. Component (B) comprises (B)(i) 1-100 pts. weight unsaturated monomer(s) selected from (meth)acrylic acid and/or styrene and their derivatives, and/or (B)(ii) 1-100 pts. weight monomer(s) selected from alkyl (per)fluoro(meth)acrylates and/or (per)fluoroalkyl (per)fluoro-(meth)acrylates and/or reaction products of 1-(1-isocyanato-1-methylethyl)-3-(2-propenyl)-benzene (m-TMI) with perfluoroalkanols and/or (B)(iii) 1-100 pts. weight unsaturated monomer(s) selected from reactive polyhedral oligomeric polysilasesquioxanes (POSS) of formula (RSiO1.5)n in which n = 4, 6, 8, 10 or 12;

R = a 1-100C organic residue with 0-50 N and/or O and/or F and/or Si and/or S atoms and a mol. weight of 250-25000 . An INDEPENDENT CLAIM is also included for a method as described above for the production of (I).

USE - In 1- or 2-component formulations, e.g. as the binder component in 2-component formulations with water-emulsifiable isocyanates as hardeners; building or industrial applications involve the permanent oil- and water-repellent surface treatment or modification of inorganic and organic substrates such as building materials of all types (concrete, plaster, silica, silicates, artificial stone, real stone, granite, marble, sandstone, slate, serpentine, clay, cement, brick), enamel, fillers, pigments, glass, ceramics, metals, alloys, wood, timber products, veneers, GF-reinforced and other plastics, leather, natural fibres, polar organic polymers and composites, especially in applications such as anti-graffiti/anti-soiling coatings, easy-clean coatings, roof tile coatings, stoving enamels, paint, varnish, cladding coatings, floor coverings, industrial flooring, parking area coatings, sports area flooring, seals, concrete parts, tiles, joints, adhesives, noise-proof walls, corr osion protection, plasters, thermal insulation systems, motor vehicle applications, coil coating, glass facades and surfaces, ceramics (including sanitary ceramics), leather finishing, surface-modified fillers and pigments, paper coating, wind power units and marine paint.

ADVANTAGE - Polyurethane-polymer hybrid dispersions with improved surface properties for the permanent oil- and water-repellent treatment of mineral and non-mineral substrates. The use of even small amounts of fluorinated monomers for the production of these dispersions results in hard coating systems or surfaces with a very low critical surface tension (lower than Teflon (RTM)), a very high contact angle and markedly reduced dirt-pickup. Solvent-free or low-solvent dispersions with a high solid content can be produced with only a small content of stabilising groups. TECHNOLOGY FOCUS:

POLYMERS - Preferred Components: Component (A) comprises (A1) dispersions based on (hydrophobically modified) polyalkylene glycols, aliphatic or aromatic polyesters, polycaprolactones, polycarbonates, alpha,omega-polybutadiene-polyols or -polymethacrylatediols , alpha,omega-dihydroxyalkylpolydimethylsiloxanes, macromonomers,

telechels, OH-functional epoxy resins, oxidatively -drying alkyd resins based on bis-epoxides and unsaturated fatty acids, and/or OH-functional polysulfides; (A2) dispersions with laterally fluorine-modified macromonomer units based on (a) perfluoroalkanols, di-isocyanates and diethanolamine, preferably using perfluoroalcohols with terminal methylene groups of formula CF3(CF2)x(CH2)yOH and/or hexafluoropropene oxide-oligomer alcohols of formula CF3CF2CF2O-(CF(CF3)CF2O)z-CF(CF3)CH2OH, in which

x = 3-20;

y = 1-6;

z = 1-10

, and/or (b) perfluoroalkylalkenes and diethanolamine, preferably using alkenes of formula CF3-(CF2)x-CH=CH2 in which

x = 3-20

, and/or (c) alkyl (per)fluoro(meth)acrylates, (per)fluoroalkyl (meth)acrylates and/or (per)fluoroalkyl (per)fluoro(meth)acrylates and diethanolamine, and/or (d) (per)fluoroalkyl-alkylene oxide and N-methylethanol-amine or diethanolamine. Component (B)(iii) comprises POSS with the formula (RSiO1.5)8 in which

R = methacryloxypropyl and optionally -CH2CH2(CF2)5CF3 and/or H and/or 1-25C alkyl and/or 3-25C cycloalkyl and/or 6-30C aryl and/or -(CH2)3(OCH2CH2)nOCH3 and/or aminopropyl and/or epoxypropyl and/or dimethoxysilyloxy and/or isocyanatopropyl and/or triethoxysilylpropyl

, or POSS of formula (RaXbSiO1.5)m in which

a, b = 0 or 1;

(a+b) = 1;

m = 2, 6, 8, 10 or 12;

R = H, alkyl, cycloalkyl, alkenyl, cycloalkenyl, alkynyl, cycloalkynyl (all optionally substituted) or other functionalised polyhedral oligomeric Si-O cluster units, attached via a polymer unit or bridging unit;

X = oxy, hydroxy, alkoxy, carboxy, sil yl, alk(oxy)silyl, siloxy, alk(oxy)siloxy, silylalkyl, alk(oxy)silylalkyl, halogen, epoxy, ester, fluoroalkyl, optionally blocked isocyanate, (meth) acrylate, nitrile, amino, phosphino, polyether, or substituents of type R with at least one such group X

. Component (C) comprises radical initiators with a half-life of 1 hour at 40-120degreesC, preferably 2,2-azobis-(2-methylbutyronitrile) and/or 2,2-azobis-(2-methylpropionitrile), with an initiator/monomer mol ratio of (B)/(C) = 0.001-0.05. The hybrid polymer has a carboxylate and/or sulfonate group content of 5-25 (preferably 10-20) meq/100 g and an acid number of 2.5-15 (preferably 5-12.5) mg KOH/g, and the hybrid dispersion has a solid content of 30-70 (preferably 40-60) wt%. The ratio of PUR resin from (A) to polymer resin from (B) and (C) is (20:80)-(80:20), preferably (40:60)-(60:40), in terms of wt% solids, and the dispersions contain less than 10 wt% organic solvent. The average particle size of the micelles is 5 0-500 (preferably 100-400) nm, the hybrid polymer has a number-average mol. weight of 50000-500000, and the ratio of crosslinker (D) to binder (A-C) = (1:3)-(1:5). Preferred Method: Stage (a2) is carried out without using other emulsifiers, at a temperature which differs by plus minus 10degreesC from that at which component (C) shows a half-life of 1 hour, preferably at 80 plus minus 10degreesC if 2,2-azobis-isobutyronitrile is used as (C). Stage (b) is carried out at 15-35 (preferably 20-30) degreesC.

EXTENSION ABSTRACT:

EXAMPLE - A fluorine-modified polyurethane base dispersion (400 g) with a polymer-bonded fluorine content of 0.64 wt%, a solid content of 38 wt% and a solvent content (NMP) of 3.60 wt% was diluted with 72.12 g water and then treated with 20.27 g n-butyl acrylate and 81.07 g methyl methacrylate followed by 1.27 g 2,2-azobis-isobutyronitrile. The mixture was heated for 5 hours at 80-85degreesC to give a finely, opaque, hybrid dispersion with a solid content of 45 wt%.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A04-H00H; A05-G; A10-E01; G02-A05F; G03-B01; G03-B02D1; G03-B02D2; G03-B02D3; G03-B02E4; G04-B02

L40 ANSWER 5 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2004-709669 [200469] WPIX
CROSS REFERENCE: 2005-134860
DOC. NO. CPI: C2004-250210 [200469]
DOC. NO. NON-CPI: N2004-562824 [200469]
TITLE: Coloring resin composition for color filter, comprises coloring material, dispersant and binder resin which does not contain nitrogen atom and has structure formed by adding epoxy group of unsaturated compound to carboxyl group of resin
DERWENT CLASS: A21; A25; A89; L03; P81; U14
INVENTOR: KAWANA S; NAGAO T; NARUTO T; OHATA T; OOHATA T; SAKO N; TANIGAWA K; TANIKAWA K; TANOOKA H; HISANAGA T; KEIKO T; NAOKI S; TATSUHIRO O; TOSHIYA N
PATENT ASSIGNEE: (MITU-C) MITSUBISHI CHEM CORP
COUNTRY COUNT: 107

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2004081070	A1	20040923	(200469)*	JA	167[0]	
JP 2004339501	A	20041202	(200479)	JA	37	
JP 2005154708	A	20050616	(200539)	JA	68	
TW 2004024272	A	20041116	(200619)	ZH		
KR 2005099535	A	20051013	(200653)	KO		
CN 1768086	A	20060503	(200663)	ZH		
KR 659959	B1	20061222	(200765)	KO		
CN 101113224	A	20080130	(200834)	ZH		
JP 2008248255	A	20081016	(200868)	JA	66	
JP 4182887	B2	20081119	(200878)	JA	58	
TW 296639	B1	20080511	(200922)	ZH		
TW 2008030041	A	20080716	(200936)	ZH		
CN 100567353	C	20091209	(201009)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004081070	A1	WO 2004-JP331	20040116
CN 1768086	A	CN 2004-80009124	20040116
JP 2005154708	A	JP 2004-9772	20040116
JP 2008248255	A Div Ex	JP 2004-9772	20040116
JP 4182887	B2	JP 2004-9772	20040116
TW 2004024272	A	TW 2004-101159	20040116
TW 296639	B1	TW 2004-101159	20040116
KR 2005099535	A PCT Application	WO 2004-JP331	20040116

KR 659959 B1	PCT Application	WO 2004-JP331	20040116
JP 2004339501 A		JP 2004-127072	20040422
KR 2005099535 A		KR 2005-714461	20050805
KR 659959 B1		KR 2005-714461	20050805
CN 101113224 A		CN 2007-10147187	20040116
TW 2008030041 A		TW 2008-105279	20040116
JP 2008248255 A		JP 2008-132669	20080521
CN 100567353 C		CN 2004-80009124	20040116

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
KR 659959	B1	Previous Publ	KR 2005099535	A
KR 2005099535	A	Based on	WO 2004081070	A
KR 659959	B1	Based on	WO 2004081070	A
JP 4182887	B2	Previous Publ	JP 2005154708	A

PRIORITY APPLN. INFO: JP 2003-366100 20031027
JP 2003-30954 20030207
JP 2003-45364 20030224
JP 2003-47604 20030225
JP 2003-122856 20030425
JP 2003-124291 20030428

INT. PATENT CLASSIF.:

MAIN: C08F0299-00; C09D0017-00

SECONDARY: C08G0059-02; G02B0005-20

IPC ORIGINAL: C08F0290-00 [I,C]; C08F0290-14 [I,A]; C08F0299-00 [I,C]; C08F0299-00 [I,A]; C08F0299-00 [I,C]; C08F0299-02 [I,A]; C08G0059-00 [I,C]; C08G0059-02 [I,A]; C08J0003-20 [I,A]; C08J0003-20 [I,C]; C08K0005-00 [I,C]; C08K0005-521 [I,A]; C08L0055-00 [I,A]; C08L0055-00 [I,C]; G02B0005-20 [I,A]; G02B0005-20 [I,C]; G02B0005-20 [I,A]; G02B0005-20 [I,C]; G02F0001-13 [I,A]; G02F0001-13 [I,C]; G02F0001-13 [I,C]; G02F0001-1335 [I,A]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-032 [I,A]; G03F0007-032 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; C08F0299-00 [I,A]; C08F0299-00 [I,C]; G02B0005-20 [I,A]; G02B0005-20 [I,C]

IPC RECLASSIF.: C08F0290-00 [I,C]; C08F0290-12 [I,A]; C08F0299-00 [I,C]; C08F0299-00 [I,A]; C08F0299-02 [I,A]; C08G0059-00 [I,C]; C08G0059-00 [I,C]; C08G0059-02 [I,A]; C08G0059-18 [I,A]; C08L0063-00 [I,A]; C08L0063-00 [I,C]; C09B0067-00 [I,C]; C09B0067-46 [I,A]; C09D0017-00 [I,A]; C09D0017-00 [I,C]; G02B0005-20 [I,A]; G02B0005-20 [I,C]; G02B0005-22 [I,A]; G02B0005-22 [I,C]; G02F0001-13 [I,C]; G02F0001-1335 [I,A]

ECLA: C08G0059-18; C08L0063-00+B; G02B0005-20A

ICO: S02F0001:1335F2

JAP. PATENT CLASSIF.:

MAIN/SEC.: C08F0290-12; C08F0290-14; C08F0299-02; C08G0059-02; C09B0067-46 B; G02B0005-20 101; G02B0005-22; G02F0001-1335 505

MAIN: C08F0290-14; C08G0059-02

SECONDARY: C08F0299-02; G02B0005-20 101; G02F0001-1335 505

FTERM CLASSIF.: 2H048; 2H091; 2H191; 4H056; 4J027; 4J036; 4J127; 4J127/AA03; 4J127/AA04; 4J127/AA07; 2H048/BA02; 4J127/BA03.1; 4J127/BA11.1; 2H048/BA45; 2H048/BA47; 2H048/BA48; 2H048/BB02; 4J127/BB02.1; 4J127/BB03.2;

4J127/BB03.3; 4J127/BB04.1; 4J127/BB04.2;
4J127/BB08.1; 4J127/BB08.2; 4J127/BB11.2;
4J127/BB11.3; 2H048/BB14; 4J127/BB22.1; 4J127/BB22.2;
4J127/BB22.3; 4J127/BB28.1; 4J127/BB30.1; 2H048/BB42;
4J127/BC02.1; 4J127/BC02.2; 4J127/BC02.3;
4J127/BC03.1; 4J127/BC06.1; 4J127/BC12.2;
4J127/BC12.3; 4J127/BC15.1; 4J127/BC15.2;
4J127/BD01.1; 4J127/BD06.1; 4J127/BD06.2;
4J127/BD12.1; 4J127/BD17.1; 4J127/BD18.2;
4J127/BD18.3; 4J127/BD20.1; 4J127/BE05.1;
4J127/BE05.X; 4J127/BE11.1; 4J127/BE11.2;
4J127/BE11.X; 4J127/BE11.Y; 4J127/BE24.1;
4J127/BE24.2; 4J127/BE24.X; 4J127/BE29.1;
4J127/BE29.2; 4J127/BE29.Y; 4J127/BE31.1;
4J127/BE31.X; 4J127/BE34.1; 4J127/BE34.2;
4J127/BE34.3; 4J127/BE34.X; 4J127/BE34.Y;
4J127/BE41.1; 4J127/BE41.Z; 4J127/BF07.1;
4J127/BF23.1; 4J127/BF23.Y; 4J127/BF30.2;
4J127/BF30.3; 4J127/BF30.Y; 4J127/BF37.1;
4J127/BF37.Y; 4J127/BF51.1; 4J127/BF51.Y;
4J127/BF51.Z; 4J127/BG01.1; 4J127/BG01.Y;
4J127/BG04.1; 4J127/BG04.X; 4J127/BG05.1;
4J127/BG05.2; 4J127/BG05.3; 4J127/BG05.X;
4J127/BG05.Y; 4J127/BG10.1; 4J127/BG10.2;
4J127/BG10.3; 4J127/BG10.Y; 4J127/BG12.2;
4J127/BG12.Y; 4J127/BG16.1; 4J127/BG16.2;
4J127/BG16.X; 4J127/BG16.Z; 4J127/BG17.1;
4J127/BG17.2; 4J127/BG17.3; 4J127/BG17.X;
4J127/BG17.Y; 4J127/BG17.Z; 4J127/BG20.1;
4J127/BG20.X; 4J127/BG23.1; 4J127/BG23.Y;
4J127/BG23.Z; 4J127/CA02; 2H048/CA04; 2H048/CA14;
2H048/CA19; 2H048/CA23; 4J036/CB16; 4J127/CB28.1;
4J127/CB29.1; 4J127/CB34.1; 4J127/CB34.2;
4J127/CC03.1; 4J127/CC09.1; 4J127/CC11.1;
4J127/CC16.2; 4J036/CD03; 4J127/DA27; 4J127/DA49;
4J127/DA51; 4J127/DA55; 4J127/DA61; 4J036/DB15;
2H091/FA02.Y; 2H191/FA02.Y; 4J127/FA17; 4J127/FA21;
4J127/FA30; 4J127/FA31; 4J127/FA53; 2H091/FB02;
2H191/FB02; 2H091/FB11; 2H091/FB13; 2H191/FB21;
2H191/FB23; 2H091/FC10; 2H191/FC10; 2H091/GA01;
2H191/GA01; 2H091/LA12; 2H191/LA13; 2H091/LA15;
2H191/LA19

BASIC ABSTRACT:

WO 2004081070 A1 UPAB: 20090407

NOVELTY - A coloring resin composition comprises a coloring material, a solvent, nitrogen atom-containing dispersant and a binder resin. The binder resin does not contain nitrogen atom, and has a structure formed by adding epoxy group of epoxified unsaturated compound to carboxyl group of carboxylated resin. The weight proportion of the dispersant with respect to the coloring material is 0.01-0.5.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) color filter substrate formed using the coloring resin composition;
(2) liquid crystal display formed using the color-filter substrate; and
(3) manufacture of coloring resin composition, which involves forming coloring resin composition (M) by mixing coloring material (I) and resin (H), forming coloring resin composition (J) by distributing and adjusting composition (M), and mixing resin (K) and solvent (L) to composition (J). The resin (H) is formed by adding epoxy group of epoxy group-containing unsaturated compound (b) to carboxyl group of resin (a) having carboxyl group.

USE - For color-filter substrate used in liquid crystal display (both claimed).

ADVANTAGE - The coloring resin composition has excellent adhesion to the substrate, and provides liquid crystal display which forms high concentration color image. The composition suppresses production of foreign material such as dry aggregate on the substrate.

TECHNOLOGY FOCUS:

POLYMERS - Preferred Dispersant: The nitrogen atom-containing dispersant comprises urethane-type dispersant, graft copolymer containing nitrogen atom and A-B block copolymer and/or B-A-B block copolymer, where A is block having quaternary ammonium salt group and B is block which does not have quaternary ammonium salt. The urethane-type dispersant (E) is a dispersion resin obtained by reacting polyisocyanate compound, compound having one or two hydroxyl groups in same molecule and compound having active hydrogen and tertiary amino group in same molecule. Preferred Copolymer: The graft copolymer containing nitrogen atom has a repeating unit containing nitrogen atom in principal chain, and is of the formula (I and/or II).

R1 = 1-5C alkylene;and

A = H or at least one group of formula (III-V).

W1,W2 = 2-10C alkylene;

p,q = 1-20;

Y1 = bivalent connection group;

Y2 = H or -CO-R2;

R2 = 1-10C alkyl;and

W3 = 1-50C alkyl, 1-5C hydroxyl group or 1-50C hydroxy alkyl.

The A-B block copolymer and/or B-A-B block copolymer consists of block (A) having quaternary ammonium salt group of formula (1) and block (B) which does not have quaternary ammonium salt.

R1a-R3a = H or optionally substituted cyclic or chain shaped hydrocarbon, however two or more of R1a-R3a combines to form a cyclic structure;

R4a = H or methyl;

X = bivalent connection group;and

Y- = counter ion.

Preferred Resin: The binder resin (B) contains mono (meth)acrylate of formula (VI).

R3-R10 = H or 1-3C alkyl, R9 and R10 does not combine to form a ring.

An epoxy-containing (meth)acrylate (A) (in mol%) (5-90) and radical polymerizable compound (B) (10-95) which copolymerizes with (meth)acrylate (A) are copolymerized and a copolymer is formed. An unsaturated monobasic compound (C) (10-100) is added to the obtained copolymer. To the obtained hydroxyl group containing copolymer polybasic acid anhydride (D) (10-100) was added to obtain binder resin. Preferred Composition: The coloring composition further comprises phosphoric acid ester-type dispersant containing partial structure of formula (3), organic carboxylic acid and/or organic carboxylic acid anhydride, photopolymerizable monomer, and photopolymerization start component.

A red coloring resin composition containing coloring material, solvent and binder resin was applied on unprocessed glass, baked at 230degreesC for 30 minutes, so that the chromaticity in a CIE colorimetric system is set as X=0.6 and Y satisfies the relation: Y at least200y-41.4, where y is chromaticity

and is less than 0.34, or Y at least100y-7.4, y at least0.34, and Y is reflectance in CIE colorimetric system. When a pattern is formed using the red coloring resin composition, the minimum pattern width of the linear image is 10 mum or less, and non-pixel portion with area 10 cm2, using 1 cmx1 cm surface of cloth constructed from polyester continuous filament with an average diameter of 3 mum or less, impregnated with ethanol rate of 0.1 cm3/cm2. The 500 nm spectral reflection factor of the pigment adhesion portion at the time of wiping of at 1 kgf/cm2 pressure is 95% or more. A green coloring resin composition containing coloring material, solvent and binder resin was applied on unprocessed glass, baked at 230degreesC for 30 minutes, so that the chromaticity in a CIE colorimetric system is set as y=0.55 and Y satisfies the relation: Y at least240x-7.1, where x is chromaticity and Y is reflectance in CIE colorimetric system. When a pattern is formed using the green coloring resin composition, the minimum pattern width of the linear image is 10 mum or less, and non-pixel portion with area 10 cm2, using 1 cmx1 cm surface of cloth constructed from polyester continuous filament with an average diameter of 3 mum or less, impregnated with ethanol rate of 0.1 cm3/cm2. The 450 nm spectral reflection factor of the pigment adhesion portion at the time of wiping of at 1 kgf/cm2 pressure is 95% or more. A blue coloring resin composition containing coloring material, solvent and binder resin was applied on unprocessed glass, baked at 230degreesC for 30 minutes, so that the chromaticity in a CIE colorimetric system is set as y=0.14 and Y satisfies the relation: Y at least20x+16.2, where x is chromaticity and Y is reflectance in CIE colorimetric system. When a pattern is formed using the blue coloring resin composition, the minimum pattern width of the linear image is 10 mum or less, and non-pixel portion with area 10 cm2, using 1 cmx1 cm surface of cloth constructed from polyester continuous filament with an average diameter of 3 mum or less, impregnated with ethanol rate of 0.1 cm3/cm2. The 550 nm spectral reflection factor of the pigment adhesion portion at the time of wiping of at 1 kgf/cm2 pressure is 95% or more. Preferred Property: The coloring resin composition has initial viscosity of 10% or less at 23degreesC. The volume average particle diameter of re-dispersion liquid, when a dry film formed by the coloring resin composition is immersed in a solvent containing the coloring resin composition, is 200 nm or less. The voltage retention while applying voltage to liquid crystal having coating film formed using the coloring resin composition, after performing annealing, is 80% or more.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A04-F06E4; A05-A04; A05-J07; A10-C02; A10-E01; A12-L03B; A12-L03D; L03-G02B; L03-G05B
EPI: U14-K01A1C

L40 ANSWER 6 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2004-615336 [200459] WPIX
DOC. NO. CPI: C2004-221626 [200459]
TITLE: Polymer carriers with bonded saccharides mannose, galactose or disaccharides to form polymer matrix for cultivation of keratinocytes or temporary immobilization of biological systems with receptors for mannose and galactose

DERWENT CLASS: A14; A25; A89; A96; B04; D16
INVENTOR: LABSK J; LABSKY J
PATENT ASSIGNEE: (MAKR-N) USTAV MAKROMOLEKULARNI CHEM AVCR
COUNTRY COUNT: 106

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2004067732	A2	20040812	(200459)*	EN	37[0]	
CZ 2003000251	A3	20040915	(200462)	CS		
CZ 295117	B6	20050518	(200535)	CS		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004067732	A2	WO 2004-CZ5	20040126
CZ 2003000251	A3	CZ 2003-251	20030127
CZ 295117	B6	CZ 2003-251	20030127

FILING DETAILS:

PATENT NO	KIND	PATENT NO
CZ 295117 B6	Previous Publ	CZ 200300251 A

PRIORITY APPLN. INFO: CZ 2003-251 20030127
INT. PATENT CLASSIF.:
IPC RECLASSIF.: C12N0005-00 [I,A]; C12N0005-00 [I,C]
ECLA: C12N0005-00S
ICO: M12N0533:20; M12N0533:30
BASIC ABSTRACT:

WO 2004067732 A2 UPAB: 20060122

NOVELTY - Bonding polymer carriers with saccharides mannose, galactose or disaccharides where the nonreducing end of the disaccharide is mannose or galactose, which are covalently bonded to polymer matrix through spacers to form polymer matrices for cultivation of keratinocytes or temporary immobilization of biological systems with receptors for mannose and galactose, is new.

DETAILED DESCRIPTION - Polymer carriers are with bonded saccharides mannose, galactose or disaccharides at which at the nonreducing end of the disaccharide is mannose or galactose, which are covalently bonded to polymer matrix through spacers to form polymer matrices for cultivation of keratinocytes or temporary immobilization of biological systems with receptors for mannose and galactose of formula PM-(R-X-(R1-Y)p-Z)n or -(R-x-(R1-Y)p-Z)n formed by subsequent modification of polymer matrix.

PM = a hydrophilic crosslinked polymer prepared by radical polymerization of a mixture containing (%, by weight) T1 (1-99), T2 (0.1-10) and T3 (0.01-10), with an optional T4 (0.1-40);

T1 = a monomer or a monomer mixture; T2 = a crosslinker or crosslinker mixture; T3 = radical initiator;

T4 = a monomer or a monomer mixture a crosslinker or crosslinker mixture or a monomer or a monomer mixture; R = covalent bond, -(CH2)a, -OCH2CH2-, -(OCH2CH2)b-, -C6H4-O-, -C6H4-CO-, -NH-C6H4-CO-, -C6H4-NH- or -O-C6H6-O-CH2CH2O-; X = covalent bond, -O-, -NR2-,-CO-O-, -CO-NH-, -NH-CO-, -O-CO-O-, -NH-CS-NH-, -NH-CO-NH- or -NH-CH2CH2CONH-; R2 = H, 1-4C alkyl or acetyl; R1 = covalent bond, -(CH2)a-, -OCH2CH2-, -C6H4-O-, -(OCH2CH2)b-O-, -C6H4-CO- or -NH-C6H4-CO-; Y = covalent bond, -N(COCH3)-, -NH-CS-NH-C6H4-O-, -NH-CS-NH-(CH2)a-C6H4-O-, -NH-CS-NH-(CH2)a-O-C6H4-O-, -NH-C6H4-O- or -NH-C6H4-CO-;

a = 1-12;
b = 1-200;
p = 0-20;
n = integer selected such that the saccharide concentration is 1x10 to the power -4 - 0.3 g per gram of polymer matrix is provided; and
Z = mannose derivatives of 17 formulae e.g. a compound of formula (i), galactose derivatives of 17 formulae e.g. a compound of formula (ii) or lactose derivatives of 7 formulae e.g. a compound of formula (iii).
The wavy line indicates the attachment of saccharide.
An INDEPENDENT CLAIM is included for preparation of the polymer carriers with bonded saccharides mannose, galactose or disaccharides by a modification reaction or a series of consecutive reactions, in which the modification reagent is a compound activating on the polymer carrier. For hydroxy or amino group, an activator is dichloride or ester chloride of dicarboxylic acid of formula HOOC-Q-COOH, diisocyanates of formula OCN-T-NCO or diisothiocyanate of formula SCN-T-NCS. For carboxyl group, the activator is thionyl chloride, mixed anhydrides, active esters, carbodiimides under catalysis with N-hydroxysuccinimide, 1-hydroxybenzotriazole, acid hydrazide or acid azide. Q = bifunctional aliphatic chain, branched aliphatic chain, cycloalkanediyl, cycloalkenediyl, benzenediyl, furandiyl or oxydiethylene; and
T = a divalent aliphatic chain, cyclohexane-1,4-diyl, methylenedi(1,4-phenylene), oxydi(1,4-phenylene), methylenedi(cyclohexane-1,4-diyl), further bromocyanogen, phosgene, diphosgene, thiophosgene, chlorocarbonates of aliphatic alcohols, branched aliphatic alcohols, cyclic alcohols, further N,N'-carbonyldiimidazole or other derivatives of carbonic acid.
USE - To form polymer matrices for cultivation of keratinocytes or temporary immobilization of biological systems with receptors for mannose and galactose (claimed).
ADVANTAGE - The nonreducing end of a disaccharides enables a better contact of a saccharide molecule with receptors of biological system. In the presence of hydrophilic material, the reaction proceeds in surface layers of the matrix and mechanical properties of the polymer formed are almost identical with those of the starting material and the amount of surface -bonded saccharides can be controlled.
TECHNOLOGY FOCUS:
ORGANIC CHEMISTRY - Preferred Method: The preparation method involves the final modification of the matrix with mannose, galactose or lactose derivatives such as amino derivatives, isothiocyanates, trichloroacetimidates, aldehydes, reactive carboxyl derivatives or activated carboxylic esters bonded to saccharides.
EXTENSION ABSTRACT:
DEFINITIONS - Preferred Definitions: - T1 = 2-hydroxyethyl acrylate, 2-hydroxyethyl methacrylate (HEMA), 2-(2-hydroxyethoxy) ethyl acrylate, 2-(2-hydroxyethoxy) ethyl methacrylate (DEGMA), tri-, tetra-and poly (ethylene glycol) mono(meth)acrylate, glycerol (meth)acrylate , 2-hydroxypropyl (meth)acrylate, omega-hydroxyalkyl (meth) acrylate, (omega-hydroxyalkyl) (meth)acrylamides, (omega-aminoalkyl) (meth)acrylamide, glycidyl (meth)acrylate , N-(2-hydroxy-1,1- bis (hydroxymethyl)-ethyl) (meth)acrylamide, (meth)acrylic acid, omega-(meth)acrylamidoalkanoic acids, 4-vinylbenzoic acid, (meth)acrylamidobenzoic acid, N-alkylacrylamides or -methacrylamides, 2-(4-vinylphenoxy)ethane-1-ol, vinyl acetate, 2-(methanesulfanyl)ethyl (meth)acrylate, 2- (methylsulfinyl) ethyl (meth)acrylate, 2-(methylsulfonyl) ethyl (meth)acrylate, 2-methoxyethyl (meth)acrylate , 2-acetoxyethyl (meth)acrylate or methyl (meth) acrylate; - T2 = ethylene di(meth)acrylate, diethylene glycol and oligo (ethylene glycol) di(meth) acrylate, N,N-ethylenedi(meth)acrylamide, 1,3-divinylurea, 1,1'-divinyl-3,3'-(ethane-1,1-diyl)di(pyrrolidin-2-one); - T3 = radical initiator generating radicals by heating, e.g. azo initiators, diacyl peroxide or other type of peroxo compound, an initiator generating radicals by UV radiation or a redox initiator, which generates radicals through an oxidation-reduction

reaction; and - T4 = water, alcohols (preferably methanol, ethanol, ethylene glycol, glycerol), dimethylformamide, dimethyl sulfoxide, poly (ethylene glycol), ester of aliphatic acids, monomethyl or dimethyl ether of ethylene glycol. EXAMPLE - A mixture of 2-hydroxypropyl methacrylate (50 ml), 2-hydroxyethyl methacrylate (20 ml), N-(6-aminohexyl)methacrylamide (10 g) and Darocur 1173 (RTM) (0.7 g) was bubbled with nitrogen for 15 minutes and poured into a mold for preparation of films (1.5 mm). The polymerization mixture was irradiated with a UV source (120 W) from a distance of 20 cm. The obtained film was washed in a standard way. The polymer film was overlayered with a solution of 4-isothiocyanatophenyl alpha-D-mannopyranoside (1.3 g) in 10 ml of acetone-isopropyl alcohol (1:1). After 2 days, the polymer film was washed 3 times with acetone, twice with methanol, then with water and dried. The film ring obtained was used for cultivation of keratinocytes. Cultivation was more successful than on standard film prepared from 2-hydroxyethyl methacrylate. The film was better by 100 %.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A04-F01A; A10-E01; A12-W11L; B04-C03; B04-F02; D05-H02; D05-H08; D05-H10

L40 ANSWER 7 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2004-229142 [200422] WPIX
DOC. NO. CPI: C2004-090079 [200422]
DOC. NO. NON-CPI: N2004-181206 [200422]
TITLE: Optical recording material used to store and retrieve information comprises polymer containing covalently bound moiety, and sensitizer capable of absorbing actinic radiation
DERWENT CLASS: A18; A23; A25; A89; L03; P83; P84; T03
INVENTOR: DINNICENZO J P; DINNOCENZO J P; FARID S Y; GILLMORE J G; ROBELLO D R; YACOUB F S
PATENT ASSIGNEE: (EAST-C) EASTMAN KODAK CO
COUNTRY COUNT: 33

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 1391886	A1	20040225	(200422)*	EN	25[0]	
JP 2004078224	A	20040311	(200422)	JA	28	
US 20040038146	A1	20040226	(200422)	EN		
US 6969578	B2	20051129	(200578)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1391886 A1		EP 2003-77476	20030807
US 20040038146 A1		US 2002-223238	20020819
US 6969578 B2		US 2002-223238	20020819
JP 2004078224 A		JP 2003-295379	20030819

PRIORITY APPLN. INFO: US 2002-223238 20020819
INT. PATENT CLASSIF.:
IPC RECLASSIF.: G03C0001-72 [I,A]; G03C0001-72 [I,C]; G03F0007-00 [I,A]; G03F0007-00 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]; G03G0009-08 [I,A]; G03G0009-08 [I,C]; G03H0001-02 [I,A]; G03H0001-02 [I,C]; G11B0007-24 [I,C]; G11B0007-244 [I,A]; G11B0007-245 [I,A]
ECLA: G03F0007-00B3; G03F0007-038S; G03G0009-08P;

G11B0007-244; G11B0007-245
USCLASS NCLM: 430/270.100
NCLS: 430/270.140
JAP. PATENT CLASSIF.:
MAIN/SEC.: G03C0001-72 Z; G03H0001-02
FTERM CLASSIF.: 2H123; 2K008; 2K008/AA04; 2H123/AE00; 2K008/DD12; 2K008/EE04
BASIC ABSTRACT:
EP 1391886 A1 UPAB: 20060203
NOVELTY - An optical recording material has polymer containing covalently bound moiety capable of undergoing chemical transformation upon electron oxidation causing change in optical properties in exposed regions, and sensitizer capable of absorbing actinic radiation to cause initial electron oxidation of the reactant.
USE - Used to store and retrieve information (claimed).
ADVANTAGE - The invention has increased storage capacity. It can record information depthwise, rather than just on surface .
TECHNOLOGY FOCUS:
POLYMERS - Preferred Properties: The reactant moiety is covalently bonded to the polymer by a linking group. The sensitizer comprises 0.001-10 weight%. The chemical transformation of the reactant moiety is isomerization, cyclization, cycloaddition, or cycloreversion reaction. The reactant moiety undergoes transformation of Equation (I).
R = H, optionally substituted 1-12C alkyl or alkoxy, cyano, carboxylate, optionally substituted 6-18C aryl, optionally substituted heteroaromatic group.
at least2R's can be joined together to form an additional ring system. The reactant moiety undergoes electron oxidation forming an oxidized reactant moiety that is transformed into an oxidized product capable of oxidizing additional reactant moiety, thus defining propagation of chain reaction. The algebraic sum of excitation energy of the sensitizer and its reduction potential is at least to oxidation potential of the reactant moiety. The sensitizer, upon absorption of the actinic radiation will be capable of accepting an electron from the reactant moiety. Preferred Compounds: The polymer is polymethacrylate, polyacrylate, polystyrene, polyester, polyamide, polyurethane, polycarbonate, cellulose ester, or poly(vinyl ester) derivative.
FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A10-E01; A12-L03C; L03-G04B
EPI: T03-B01B1

L40 ANSWER 8 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2002-049163 [200206] WPIX
CROSS REFERENCE: 2002-025907; 2002-139298
TITLE: Molecularly imprinted polymer for explosive-detecting devices, formed from a polymerizable porphyrin derivative and a target molecule comprising an explosive chemical
DERWENT CLASS: A26; A89; K04; S03
INVENTOR: ARNOLD B M; LAWRENCE D S; MURRAY G M
PATENT ASSIGNEE: (UYJO-C) UNIV JOHNS HOPKINS; (ARNO-I) ARNOLD B M; (MURR-I) MURRAY G M; (UMBA-C) UNIV MARYLAND BALTIMORE COUNTY
COUNTRY COUNT: 93

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2001077664 <--	A2	20011018	(200206)*	EN	36[5]	
AU 2001072900 <--	A	20011023	(200213)	EN		
US 20030027936 <--	A1	20030206	(200313)	EN		
US 6872786	B2	20050329	(200522)	EN		
AU 2001272900	A8	20050908	(200568)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001077664	A2	WO 2001-US11562	20010410
US 6872786	B2 Provisional	US 2000-195934P	20000410
AU 2001072900	A	AU 2001-72900	20010410
AU 2001272900	A8	AU 2001-272900	20010410
US 20030027936	A1	US 2002-182518	20020730
US 6872786	B2	US 2002-182518	20020730
US 20030027936	A1 PCT Application	WO 2001-US11562	20010410
US 6872786	B2 PCT Application	WO 2001-US11562	20010410

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001072900 A	Based on	WO 2001077664 A
US 6872786 B2	Based on	WO 2001077664 A
AU 2001272900 A8	Based on	WO 2001077664 A

PRIORITY APPLN. INFO: US 2000-195934P 20000410
US 2002-182518 20020730

INT. PATENT CLASSIF.:

MAIN:	C08F0226-06
SECONDARY:	G01N0031-22; G01N0033-00
IPC RECLASSIF.:	G01N0021-77 [I,A]; G01N0021-77 [I,C]; G01N0029-02 [I,A]; G01N0029-02 [I,C]; G01N0031-22 [I,A]; G01N0031-22 [I,C]; G01N0033-00 [N,A]; G01N0033-00 [N,C]; G01N0033-02 [I,A]; G01N0033-02 [I,C]; G01N0033-22 [I,A]; G01N0033-22 [I,C]
ECLA:	G01N0021-77B; G01N0029-02F; G01N0031-22; G01N0033-02; G01N0033-22
ICO:	S01N0021:77B2C; S01N0021:77H5; S01N0021:77H6; S01N0033:00D2D4G; S01N0033:02; S01N0291:01B; S01N0291:01C; S01N0291:01E; S01N0291:024B; S01N0291:025B; S01N0291:025F; S01N0291:101
USCLASS NCLM:	525/384.000
NCLS:	073/035.140; 525/326.700

BASIC ABSTRACT:

WO 2001077664 A2 UPAB: 20100107

NOVELTY - Molecularly imprinted polymer formed by (A) providing the reaction product of (i) polymerizable porphyrin derivative; and (ii) target molecule comprising an explosive chemical; (B) copolymerizing with monomer and crosslinking agent; and

(C) removing target molecule from polymer.

DETAILED DESCRIPTION - Molecularly imprinted polymer (MIP) formed by

(A) providing the reaction product of (i) a polymerizable porphyrin derivative; and (ii) a target molecule comprising an explosive chemical; (B) copolymerizing product of (A) with monomer and crosslinking agent; and (C) removing target molecule from polymer. MIP shows selective affinity to the target and undergoes a detectable change in absorption and/or emission of electromagnetic radiation (EMR) when bound to the target molecule.

INDEPENDENT CLAIMS are included for (1) the method of making the MIP; (2) making a polymer by polymerizing a porphyrin derivative with monomer and crosslinking agent; (3) a fiber optic sensing device for target molecules comprising optical fibers with the MIP at one end, a probe and detection means at the other; and

(4) a method for detecting the presence of a target molecule using the sensing device to detect changes in absorption and/or emission of EMR by the MIP.

USE - The molecularly imprinted polymer is used in a device to detect explosives, e.g. TNT and TNB (claimed).

ADVANTAGE - Other methods of detecting explosives and their residues require complex analytical instruments (e.g. gas chromatograph with chemiluminescent detection). They are usually large, difficult to maintain, expensive and require skilled operators, unlike the inventive device. No sample transport is necessary, reducing the possibility of contamination. The device is also less cumbersome and has a longer shelf life than the available immunoassay tests.

DESCRIPTION OF DRAWINGS - The drawing is a schematic representation of a molecular imprinting. TECHNOLOGY FOCUS:

POLYMERS - Preferred Components: The polymerizable porphyrin has the formula (I)

R1 = polymerizable moiety of (meth)acrylate, vinyl, vinyl ether, vinyl acetate, amine, carboxyl, hydroxyl, trialkoxysilane, dialkoxychlorosilane, epoxy, or preferably styrene; and

R2 = F, Cl, Br, I, 1-20C (hetero)alkyl, 2-20C (hetero)aryl, 2-20C (hetero)alkenyl, 2-20C (hetero)alkynyl, trialkylsilyl or preferably H.

INSTRUMENTATION AND TESTING - Preferred Device: The explosive chemical is trinitrotoluene (TNT), or trinitrobenzene (TNB). The light source means is argon laser, blue laser, tunable laser, or light emitting diode. The detection means is a spectrophotometer, gas or mass spectrometer, photomultiplier tube, monochromator with charge coupled device (CCD) camera, filters or the naked eye.

EXTENSION ABSTRACT:

WIDER DISCLOSURE - A surface acoustic wave sensor for detecting the presence of an explosive in a fluid is disclosed. The sensor comprises: a film of the MIP on a substrate, where the porphyrin moiety is capable of chemically binding with fluids containing an explosive; input and output transducers on the film or substrate; and a function generator operatively associated with the input transducer for generating a surface acoustic wave along a delay line. EXAMPLE - Stoichiometric amounts of 4-vinylbenzaldehyde and pyrrole (0.01 M in chloroform) were reacted with boron trifluoride etherate (0.0033 M) at room temperature for 60 minutes to form the intermediate porphyrinogen. This was then oxidized with 2,3-dichloro-5,6-dicyano-1,4-benzoquinone (DDQ) to form derivatized porphyrin. Polymerization took place with a mixture of: the porphyrin and equivalent trinitrobenzene (0.10-1 weight%); styrene (83-88 mol.%); divinylbenzene crosslinker (5-10 weight%); in alcohol (2 mL) with azobisisobutylnitrile (AIBN, approximately 1 weight%). The solutions, sealed under nitrogen were sonicated for 2-4 hours at 60 degreesC and allowed to cure overnight. The resulting block copolymers were ground and the imprinting molecule removed by heating or soaking in alcohol. The removal of the imprinting molecule results in a loss of intensity in the emission spectrum at 710 nm and a gain at 660 nm.

FILE SEGMENT: CPI; EPI

MANUAL CODE: CPI: A01-F; A04-H00H; A05-K00K; A10-E01;

A12-L04; K04-F03
EPI: S03-C03; S03-C06

L40 ANSWER 9 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2002-010530 [200201] WPIX
CROSS REFERENCE: 2003-896910; 2007-475263
TITLE: Microstamping activated polymer surfaces for producing e.g. tissue culture plates, by contacting a functionalized polymer surface with a ligand having a moiety that can react to form a covalent bond with the polymer
DERWENT CLASS: A35; D16; J04; P42; S03
INVENTOR: CHILKOTI A; YANG Z
PATENT ASSIGNEE: (UDUK-C) UNIV DUKE
COUNTRY COUNT: 94

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2001067104 <--	A2	20010913	(200201)*	EN	45[9]	
AU 2001045378 <--	A	20010917	(200204)	EN		
US 6444254 <--	B1	20020903	(200260)	EN		
EP 1269189 <--	A2	20030102	(200310)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001067104	A2	WO 2001-US6547	20010301
US 6444254	B1	US 2000-519038	20000303
AU 2001045378	A	AU 2001-45378	20010301
EP 1269189	A2	EP 2001-918283	20010301
EP 1269189	A2	WO 2001-US6547	20010301

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001045378 A	Based on	WO 2001067104 A
EP 1269189 A2	Based on	WO 2001067104 A

PRIORITY APPLN. INFO: US 2000-519038 20000303
INT. PATENT CLASSIF.:
IPC RECLASSIF.: B01J0019-00 [I,A]; B01J0019-00 [I,C]; B05D0001-18 [N,A]; B05D0001-18 [N,C]; B05D0001-28 [I,A]; B05D0001-28 [I,C]; C07B0061-00 [I,A]; C07B0061-00 [I,C]; G01N0033-544 [I,C]; G01N0033-545 [I,A]
ECLA: B01J0019-00C; B05D0001-28C; C07B0061-00L; G01N0033-545
ICO: L01J0219:00C10B; L01J0219:00C10B2; L01J0219:00C10B4; L01J0219:00C2D8; L01J0219:00C2L; L01J0219:00C2L8; L01J0219:00C2L8B; L01J0219:00C4B; L01J0219:00C4H; L01J0219:00C4L12; L01J0219:00C4L2; L05D0001:18C; M07M0011:00; M40B0040:06; M40B0040:10; M40B0060:14;

Y01N0006:00

BASIC ABSTRACT:

WO 2001067104 A2 UPAB: 20100107

NOVELTY - Microstamping a functionalized polymer surface having a reactive moiety with a ligand, comprising contacting the surface with a stamp that has at least one ligand adsorbed onto its surface, is new. The ligand also has a reactive moiety that reacts with the moiety of the polymer to form a covalent bond. The stamp is then separated from the polymer to form a ligand covalently bound to the surface.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) a device comprising at least one polymer surface microstamped using the novel method; and (2) forming a device comprising a microstamped polymer surface.

USE - For making a tissue culture plate (claimed). The method can also be used in making a polymeric sheet or film, a strand, a tubing, a sphere, a container, a capillary, a pad, or a molded plastic device.

ADVANTAGE - The method enables biological ligands and proteins to be directly patterned on polymer with a spatial resolution of at least 5 micro-m and good reproducibility. It also provides spatial control of ligand presentation on the surface of commonly used polymeric biomaterials. TECHNOLOGY FOCUS:

POLYMERS - Preferred Method: The polymer surface is functionalized by introducing carboxylic acids onto the surface of the polymer, and then activating the carboxylic acids. The carboxylic acids are functionalized by activating the carboxylic acids to pentafluoropentyl esters.

Preferred Polymers: The polymer can be a synthetic polymer or biological polymer. It can be a poly(ethylene terephthalate) (PET), polystyrene (PS), polycarbonate (PC), poly(epsilon-caprolactone) (PECL or PCL), poly(methyl methacrylate) (PMMA), poly(lactic acid) (PLA), polydimethylsiloxane (PDMS), polybutadiene (PB), polyvinyl alcohol (PVA), fluorinated polyacrylate (PFOA), poly(ethylene-butylene) (PEB), or poly(styrene-acrylonitrile) (SAN). The polymer surface can be flat, or curved surface.

Preferred Moieties: The reactive moiety of the functionalized polymer surface and the ligand can be amines, thiols, sulfides, disulfides, (chloro)silanes, carboxylic acids, nitrites, isonitriles, hydroxamic acids, acid chlorides, anhydrides, sulfonyls, phosphoryls, azo groups, diazo, or hydroxyl groups.

Preferred Ligands: The ligand is cytophilic and can be small biological molecules (preferably biotin), proteins, peptides, or nucleic acids. The reactive moiety is linked to the ligand by a spacer, preferably ethylene glycol oligomer.

MECHANICAL ENGINEERING - Preferred Stamp: The stamp is an elastomeric stamp, preferably poly(dimethylsiloxane) (PDMS) stamp. The stamp is plasma-oxidized, or chemically oxidized prior to contacting. The stamp comprises at least one indentation in the ligands bound to the stamp.

EXTENSION ABSTRACT:

EXAMPLE - Hydroxylated poly(ethylene terephthalate) (PET) films (Melinex) (RTM) were reacted with 1 M bromoacetic acid/2 M sodium hydroxide overnight, to convert the hydroxyl groups to carboxylic acid on the PET surface (PET-COOH). The PET films were activated by immersion in an ethanol solution of 0.1 M 1-ethyl-3-(dimethylamino)propylcarbodiimide and 0.2 M pentafluorophenol for 15 minutes. The activated PET-COOH substrate was contacted for 10 minutes with a plasma- oxidized polydimethylsiloxane (PDMS) stamp inked with 10 mM biotin-amine in ethanol. Unreacted pentafluorophenyl esters were inactivated by

reacting with 2-(2-aminoethoxy)ethanol for 20 minutes. The substrate was then examined by incubating the substrate with 0.1 micro-M Alexa (RTM) 488-labeled streptavidin in HEPES (N-(2-hydroxyethyl)piperazine-N'-(2-ethanesulfonic acid) buffered saline (pH 7.4). The examination showed that streptavidin was spatially localized on the periodic, 40 micro-M by 40 micro-M biotin micropattern printed on PET-COOH. The average constant ratio of the protein pattern is 250:1.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A10-E01; A11-C04B2; A11-C04D; A12-W11L; D05-H02; D05-H08; J04-B01 EPI: S03-E14H4

L40 ANSWER 10 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2001-080585 [200109] WPIX
CROSS REFERENCE: 2001-091206; 2001-122791
DOC. NO. CPI: C2001-023205 [200109]
TITLE: Polymers as thickeners, dispersants and binders for latex paint composition, contains a macromonomer with hydrophobic and alkoxylated portions and optionally a monomer having crosslinking properties
DERWENT CLASS: A14; A82; G02
INVENTOR: OLESEN K R; VANDEZANDE G A
PATENT ASSIGNEE: (OLES-I) OLESEN K R; (UNIC-C) UNION CARBIDE CHEM & PLASTICS CO INC; (UNIC-C) UNION CARBIDE CHEM & PLASTICS TECHNOLOGY; (UNIC-C) UNION CARBIDE CHEM & PLASTICS TECHNOLOGY CORP; (VAND-I) VANDEZANDE G A
COUNTRY COUNT: 83

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2000075205 <--	A1	20001214	(200109)*	EN	42[0]	
AU 2000054733 <--	A	20001228	(200119)	EN		
EP 1198485 <--	A1	20020424	(200235)	EN		
CN 1354760 <--	A	20020619	(200263)	ZH		
JP 2003511481 <--	W	20030325	(200330)	JA	43	
AU 766776 <--	B	20031023	(200381)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000075205	A1	WO 2000-US15754	20000608
AU 2000054733	A	AU 2000-54733	20000608
AU 766776	B	AU 2000-54733	20000608
CN 1354760	A	CN 2000-808616	20000608
EP 1198485	A1	EP 2000-939681	20000608
EP 1198485	A1	WO 2000-US15754	20000608
JP 2003511481	W	WO 2000-US15754	20000608
JP 2003511481	W	JP 2001-502485	20000608

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 766776 B	Previous Publ	AU 2000054733 A
AU 2000054733 A	Based on	WO 2000075205 A
EP 1198485 A1	Based on	WO 2000075205 A
JP 2003511481 W	Based on	WO 2000075205 A
AU 766776 B	Based on	WO 2000075205 A

PRIORITY APPLN. INFO: US 1999-138086P 19990608
INT. PATENT CLASSIF.:
MAIN: C08F0290-06
IPC RECLASSIF.: C08F0212-00 [N,C]; C08F0212-08 [N,A]; C08F0220-00 [I,C]; C08F0220-04 [I,A]; C08F0220-06 [N,A]; C08F0290-00 [I,C]; C08F0290-06 [I,A]; C08G0018-00 [I,C]; C08G0018-28 [I,A]; C08G0018-81 [I,A]; C09D0131-00 [I,C]; C09D0131-02 [I,A]; C09D0133-06 [I,A]; C09D0133-06 [I,C]
ECLA: C08F0220-04; C08F0290-06B; C08F0290-06E; C08G0018-28D5F; C08G0018-81B; C09D0131-02+B2; C09D0133-06B+B2
ICO: M08F0212:08+M08F220/06+M08F220/14+M08F222/38B; M08F0220:06+M08F220/18B+M08F220/28F+M08F222/38B; M08F0220:06+M08F220/18B+M08F220/30F+M08F222/38B
JAP. PATENT CLASSIF.:
MAIN/SEC.: C08F0290-06
FTERM CLASSIF.: 4J027; 4J127; 4J127/AA04; 4J027/AC01; 4J027/AC02; 4J027/AC03; 4J027/AC08; 4J027/BA02; 4J027/BA04; 4J027/BA06; 4J027/BA07; 4J027/BA13; 4J027/BA14; 4J127/BB02.1; 4J127/BB10.1; 4J127/BB17.1; 4J127/BC02.1; 4J127/BC15.1; 4J127/BD21.1; 4J127/BE50.1; 4J127/BE50.Y; 4J127/BF23.1; 4J127/BF23.X; 4J127/BF27.1; 4J127/BF27.X; 4J127/BG05.1; 4J127/BG05.X; 4J127/BG14.1; 4J127/BG14.X; 4J127/BG27.1; 4J127/BG27.Y; 4J027/CB02; 4J127/CB12.1; 4J127/CB14.2; 4J127/CB16.3; 4J027/CC02; 4J127/CC08.3; 4J027/CD08; 4J127/FA00; 4J127/FA51

BASIC ABSTRACT:

WO 2000075205 A1 UPAB: 20050524

NOVELTY - A polymer is polymerized from monomers including an unsaturated carboxylic acid monomer; a different monoethylenically unsaturated monomer and a macromonomer comprising hydrophobic and alkoxylated portions.

DETAILED DESCRIPTION - A polymer is polymerized using:

(i) an unsaturated carboxylic acid monomer; (ii) a different monoethylenically unsaturated monomer; and (iii) macromonomer comprising hydrophobic and alkoxylated portions which is polymerizable with (i) and (ii). The polymer is such that the monomers further comprise 0.5 - 50 weight% of at least one monomer having a crosslinking functionality, based on the total weight of polymer .

An INDEPENDENT CLAIM is also included for a polymer including (i), (ii) and (iii), where the amount of macromonomer is 0.5 - 50 weight% based on the total weigh of the polymer.

USE - The polymer is used as thickeners, dispersants and binders for latex coating compositions such as architectural, industrial and automotive coatings, sealants, paper coatings, etc..

ADVANTAGE - The polymers can be tailor made for improved chemical, corrosion or humidity resistance and/or adhesion to a particular substrate by altering the levels of crosslinking or macromonomer content. TECHNOLOGY FOCUS:

POLYMERS - Preferred Crosslinking Monomer: The monomer with a crosslinking functionality comprises a carbonyl

containing monomer and more specifically is one of (meth)acrolein, diacetone (meth)acrylamide or vinylaceto acetate. It is present at 5-50 weight% of the total polymer weight. Preferred Amounts: The polymer comprises 5-50 weight% (more preferably 1-20 weight%) of the macromonomer. Polymer preferably comprises 5-40 weight% of macromonomer.

Preferred Hydrophobic Portion: The hydrophobic portion of the macromonomer of polymer has 1 - 30 C atoms.

Preferred Molecular Weight: The number average mol.weight of polymer is 5000-200000 (more preferably 20000-200000) g/mol

EXTENSION ABSTRACT:

EXAMPLE - A macromonomer was prepared by charging a reactor with 930g of a 40 mole ethoxylate of nonylphenol, heating with nitrogen sparging to 110degreesC for 2 hours, cooling to 80degreesC, switching to air sparging, charging 0.02g methyhydroquinonone, 0.50g dibutyl tin laurate and 99.7g alpha,alpha-dimethyl-m-isopropenyl isocyanate. After 2 hours at 80degreesC the product was cooled to room temperature and obtained as a white wax with 0.5% residual isocyanate and 98% of original ethylenic unsaturation retained. A monomer mixture was prepared by charging a feed cylinder with 245g water, 4.0g TRITON GR-9M (RTM: surfactant), 120g styrene, 17g methyl methacrylate, 48g methacrylic acid, 30g 2-ethylhexyl acrylate and 25g diacetone acrylamide and a second feed cylinder with 250g water, 6.0g TRITON GR-9M (RTM), 100g diacetone acrylamide, 543g methyl methacrylate and 365g 2-ethylhexyl acrylate. A reactor was charged with 609g water and 8g TRITON GR-9M (RTM). Initial and delayed oxidizer solutions were prepared as 3g ammonium persulfate in 24g water and 6.0g in 140g water. The reactor contents were heated to 80degreesC under nitrogen and the initial oxidizer solution added. After 2 minutes, the first monomer mixture was fed for 40 minutes at 79-81degreesC. After a further 15 minutes 20g of 30 weight% ammonium hydroxide solution was added and 15 minutes later the second monomer mixture was fed concurrently with the delayed oxidizer for 2 hours. The product was held at 80degreesC for 1 hour and 20g 15 weight% ammonium hydroxide was added. The cooled latex with 48% solids had pH 8 and volume average particle size 93nm. To this product were added 0.75 molar amounts of adipic dihydrazide per mole of diacetone acrylamide.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A04-F04; A04-F05; A08-M06; A08-S05; A10-E01; G02-A03; G02-A05; G02-A05C; G04-B02

L40 ANSWER 11 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2000-367672 [200032] WPIX
DOC. NO. CPI: C2000-111170 [200032]
TITLE: Coating material as liquid or paste, especially for porous or permeable surfaces, contains a radiation-curable binder which is modified to confer oxidative drying properties
DERWENT CLASS: A23; A82; G02
INVENTOR: DEDERICHS S; HERMANN S; SCHOBBEN C
PATENT ASSIGNEE: (OSTE-N) OSTERMANN & SCHEIWE GMBH & CO
COUNTRY COUNT: 26

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 1002842 <--	A1	20000524	(200032)*	DE	6[0]	
DE 19853145 <--	A1	20000525	(200032)	DE		
NO 9905634 <--	A	20000519	(200035)	NO		

DE 29824317 U1 20010118 (200106) DE
<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 1002842 A1		EP 1999-121218	19991023
DE 29824317 U1 19981118		DE 1998-29824317	
DE 19853145 A1 19981118		DE 1998-19853145	
DE 29824317 U1 19981118	Application No	DE 1998-19853145	
NO 9905634 A		NO 1999-5634	19991117

PRIORITY APPLN. INFO: DE 1998-19853145 19981118
DE 1998-29824317 19981118
INT. PATENT CLASSIF.:
IPC RECLASSIF.: C09D0167-06 [I,A]; C09D0167-06 [I,C]; C09D0167-07 [I,A]; C09D0167-08 [I,A]; C09D0167-08 [I,C]
ECLA: C09D0167-06+C4; C09D0167-07+C4; C09D0167-08+C4
BASIC ABSTRACT:

EP 1002842 A1 UPAB: 20060116

NOVELTY - A fast-curing radiation-hardened coating material applied as a liquid or paste, especially to porous or permeable surfaces, contains (a) a binder modified with groups or functionalities which are susceptible to attack by oxygen so as to confer additional oxidative drying properties without affecting its radiation-curing properties and (b) oxidative drying catalyst(s).

USE - For coating surfaces, especially porous or permeable surfaces, e.g. surfaces of furniture.

ADVANTAGE - Combines the advantages of radiation-cured and oxidatively-drying coating materials when applied to porous substrates, i.e. short hardening times at or near the surface when irradiated, preferably with photons or electrons, and complete hardening in sub-surface zones over a longer period. This material can be formulated as an environmentally harmless, 1-component coating material with a very high storage stability and a long working time, containing commercially available, low-cost catalysts. TECHNOLOGY FOCUS:

ORGANIC CHEMISTRY - Preferred Component: Binder (a) is modified with mono- and/or poly-unsaturated aliphatic and/or aromatic carboxylic acids, especially fatty acids and/or oils. Preferred Catalyst: Salts of carboxylic acids, preferably cobalt and/or lithium salts.

POLYMERS - Preferred Composition: The binder is cured by UV radiation and contains a UV-reactive photoinitiator which decomposes when irradiated to form compounds which react with the rest of the binder. The coating material contains 0.01-5.0 (preferably 0.1-1.0) wt% catalyst (b), up to 50 wt% solids (especially fillers and/or pigments), up to 90 wt% volatiles (especially water or solvents) and up to 10 wt% other additives, especially additives which affect processing and/or final product properties.

EXTENSION ABSTRACT:

EXAMPLE - A suitable coating material with a liquid consistency is obtained by intensively mixing 96.8 wt% fatty acid- modified, acrylated polyester resin with 3.0 wt% phenyl 2-hydroxy-2-propyl ketone and 0.2 wt% cobalt octoate (12%). When applied to a porous substrate, this material undergoes rapid hardening in the outer layers on irradiation with UV, followed by hardening in

the deeper layers at a slower but still acceptable rate. Slow hardening also occurs without UV-curing.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A10-E01; A11-C02B; A12-B01; G02-A02

L40 ANSWER 12 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2000-015982 [200002] WPIX
DOC. NO. CPI: C2000-003500 [200002]
TITLE: A new binder and a water-based coating composition that contains it
DERWENT CLASS: A82; G02
INVENTOR: LOHS W; LUCAS R T; VIVIAN S E; LUCAS R; VIVIAN S
PATENT ASSIGNEE: (CRAY-N) CRAY VALLEY LTD; (LOHS-I) LOHS W; (LUCA-I) LUCAS R T; (VIVI-I) VIVIAN S E; (CRAY-N) CRAY VALLEY SA
COUNTRY COUNT: 30

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
GB 2337994 <--	A	19991208	(200002)*	EN	22[0]	
EP 962507 <--	A1	19991208	(200002)	EN		
NO 9902599 <--	A	19991202	(200007)	NO		
CA 2273579 <--	A1	19991201	(200020)	EN		
KR 2000005699 <--	A	20000125	(200063)	KO		
MX 9904969 <--	A1	20000801	(200137)	ES		
US 20010008918 <--	A1	20010719	(200143)	EN		
US 6333370 <--	B2	20011225	(200206)	EN		
MX 213376 <--	B	20030324	(200413)	ES		
EP 962507	B1	20040804	(200451)	EN		
DE 69919078	E	20040909	(200459)	DE		
ES 2226304	T3	20050316	(200525)	ES		
DE 69919078	T2	20050721	(200548)	DE		
NO 321103	B1	20060320	(200622)	NO		
KR 644108	B1	20061113	(200757)	KO		
CA 2273579	C	20081021	(200877)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
GB 2337994 A		GB 1998-11766	19980601
DE 69919078 E 19990514		DE 1999-69919078	
DE 69919078 T2 19990514		DE 1999-69919078	
EP 962507 A1		EP 1999-401178	19990514
EP 962507 B1		EP 1999-401178	19990514
DE 69919078 E		EP 1999-401178	19990514
ES 2226304 T3		EP 1999-401178	19990514

DE 69919078 T2	EP 1999-401178 19990514
KR 2000005699 A	KR 1999-18505 19990521
KR 644108 B1	KR 1999-18505 19990521
CA 2273579 A1	CA 1999-2273579 19990527
MX 9904969 A1	MX 1999-4969 19990528
MX 213376 B	MX 1999-4969 19990528
US 20010008918 A1	US 1999-322831 19990528
US 6333370 B2	US 1999-322831 19990528
NO 9902599 A	NO 1999-2599 19990531
NO 321103 B1	NO 1999-2599 19990531
CA 2273579 C	CA 1999-2273579 19990527

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
DE 69919078	E	Based on	EP 962507	A
ES 2226304	T3	Based on	EP 962507	A
DE 69919078	T2	Based on	EP 962507	A
NO 321103	B1	Previous Publ	NO 9902599	A
KR 644108	B1	Previous Publ	KR 2000005699	A

PRIORITY APPLN. INFO: GB 1998-11766 19980601
INT. PATENT CLASSIF.:

MAIN:	C09D0133-04; C09D0007-12
SECONDARY:	C08F0002-26
IPC ORIGINAL:	C08F0002-44 [I,A]; C08F0002-44 [I,C]; C08F0220-00 [I,C]; C08F0220-20 [I,A]; C08F0008-00 [I,C]; C08F0008-32 [I,A]; C08G0018-00 [I,C]; C08G0018-62 [I,A]; C09D0133-04 [I,A]; C09D0133-04 [I,C]; C09D0133-06 [I,A]; C09D0133-06 [I,C]; C09D0175-14 [I,A]; C09D0175-14 [I,C]; C09D0007-00 [I,C]; C09D0007-00 [I,A]; C09D0007-00 [I,C]
IPC RECLASSIF.:	C08F0002-12 [I,C]; C08F0002-26 [I,A]; C09D0133-06 [I,A]; C09D0133-06 [I,C]
ECLA:	C09D0133-06B
USCLASS NCLM:	523/502.000; 525/007.000
NCLS:	523/501.000; 524/513.000; 524/539.000; 524/601.000; 525/007.000; 525/007.400; 525/131.000; 526/290.000

BASIC ABSTRACT:

GB 2337994 A UPAB: 20060115

NOVELTY - A binder is the reaction product of a mixture comprising: (a) a carboxy-terminated fatty acid ester that is the reaction product of an autoxidizable fatty acid and a polyol followed by a reaction to attach a carboxyl group; (b) an ethylenically unsaturated carboxylic acid; and (c) an ester of an ethylenically unsaturated carboxylic acid.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a coating composition comprising the binder described above and water.

USE - In aqueous structured coating compositions such as paints, lacquers, varnishes or stains.

ADVANTAGE - The new coating compositions have higher abrasion resistance, increased hardness, faster drying and require less organic solvent in the final reaction mixture, thus contributing less to atmospheric pollution. TECHNOLOGY FOCUS:

POLYMERS - Preferred Reaction Mixture:

Another ethylenically unsaturated monomer is included in the reaction mixture, along with a hydroxyl functional monomer material and at least one amine and these react to form a product which is then reacted with an isocyanate material to produce a a thixotropic binder. The reaction mixture is

reacted in the presence of an organic solvent. The reaction mixture further comprises 20-50 weight % of organic solvent (based on the weight of the reaction mixture).

Preferred Fatty Acid Ester: The fatty acid ester has a hydroxyl number from 10-100 mgKOH/g, preferably from 20-70 mgKOH/g. The fatty acid ester is obtainable as the reaction product of an autoxidizable fatty acid and a polyol followed by a reaction to attach a terminal carboxy group. The fatty acid is a non-conjugated or a conjugated acid, or a mixture of these. The carboxylated fatty acid comprises 20-80 weight % of the binder.

Preferred Binder: An equivalent polymer formed only from polymerization of reactants (b) and (c) and also another ethylenically unsaturated monomer (if present) has a glass transition temperature of 263-373 degrees K, preferably from 273-343 degrees K. The binder has an acid number of 20-75 mgKOH/g, preferably from 35-70 mgKOH/g. The organic solvent is removed after the reaction has been completed. The fatty acid and polyol are reacted to an acid number of 0-10 mgKOH/g, preferably to less than 5 mgKOH/g. The binder is then neutralized to form the final binder product.

EXTENSION ABSTRACT:

EXAMPLE - A fatty acid ester was made by reacting 130.8 parts of sunflower fatty acid and 32.7 parts of conjugated fatty acid with 41.8 parts of di-trimethylol propane. The mixture was heated slowly to 240 degrees C and water was removed until the acid number was less than 4 mgKOH/g. The fatty acid ester was cooled to 170 degrees C for 30 minutes then cooled to 140 degrees C. 379.0 parts of dipropylene glycol dimethyl ether was added and the temperature held at 140 degrees C. - A mixture of 47.3 parts of methacrylic acid, 181.8 parts of methyl methacrylate, 131.3 parts of butyl methacrylate, 25.4 parts of butyl acrylate and 16.7 parts of tertiary-butyl perbenzoate was prepared and added to the fatty acid ester over 3-4 hours. When all of the monomer mixture had been added, the product was held at 140 degrees C for four more hours. - Vacuum was applied and the solvent removed until the non-volatile content was higher than 80% by weight The product was cooled and discharged, and had a color of 5 Gardner, a viscosity at 25 degrees C of 1433000 mPa.s, a non-volatile content of 75.3 % and an acid number of 65.7 mgKOH/g. - The product was neutralized with diisopropylamine and diluted to 30% non-volatile content with water, to give a clear solution. Suitable driers were added to give a final clear lacquer with an NVC of 30.2 %, viscosity of 300 mPa.s at 25 degrees C and a pH of 10. A film of this lacquer had a sand dry time of 30 min. and was thoroughly dry in 1 hr. to give a coating with a Koenig hardness of 14.4% after one day, 18% after 7 days and a 60 degrees gloss of 90%.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A05-D02E; A08-D03; A08-D04A; A10-D05; A10-E01; A11-C02C; A12-B01H; G02-A02E

L40 ANSWER 13 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1999-619967 [199953] WPIX
CROSS REFERENCE: 2002-583401; 2004-200989
DOC. NO. CPI: C1999-180912 [199953]
TITLE: Composition suitable for scavenging oxygen, used for food or beverage containers
DERWENT CLASS: A18; A28; A92; E12; E36; J01; P73; Q32; Q34
INVENTOR: CAI G; CHING T Y; CHING Y; DEPREE C; DIPRY C; GALLAND M S; GALLAND S; GANGFENG C; GOODRICH J L; GOODRICH L; LEONARD J P; LEONARD P; MATTHEWS A; MATTHEWS A E; RUSSEL K W; RUSSELL K W; RUSSELL W; TAYEN C; YANG H; DEAPURI C; JING D

PATENT ASSIGNEE: (CALI-C) CHEVRON CHEM CO LLC; (CALI-C) CHEVRON PHILLIPS CHEM CO; (CALI-C) CHEVRON PHILLIPS CHEM CO LLC; (CALI-C) CHEVRON PHILLIPS CHEM CO LP; (CRYV-C) CRYOVAC INC; (SEAA-C) SEALED AIR NZ LTD

COUNTRY COUNT: 85

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9948963	A2	19990930	(199953)*	EN	176	[5]
<--						
AU 9931130	A	19991018	(200009)	EN		
<--						
BR 9909074	A	20001205	(200101)	PT		
<--						
EP 1066337	A2	20010110	(200103)	EN		
<--						
NO 2000004746	A	20001114	(200103)	NO		
<--						
US 6254803	B1	20010703	(200140)	EN		
<--						
US 6254804	B1	20010703	(200140)	EN		
<--						
CN 1301280	A	20010627	(200158)	ZH		
<--						
AU 757403	B	20030220	(200326)	EN		
<--						
JP 2003521552	W	20030715	(200347)	JA	163	
<--						
MX 2000009326	A1	20020301	(200362)	ES		
<--						
NZ 506972	A	20030926	(200366)	EN		
<--						
CN 1515608	A	20040728	(200469)	ZH		
EP 1066337	B1	20041103	(200475)	EN		
DE 69921631	E	20041209	(200481)	DE		
CN 1129633	C	20031203	(200565)	ZH		
<--						
DE 69921631	T2	20051229	(200606)	DE		
US 7097890	B1	20060829	(200657)	EN		
CA 2325404	C	20070710	(200747)	EN		
CN 100535040	C	20090902	(200966)	ZH		
MX 260085	B	20080901	(201013)	ES		
JP 2010070765	A	20100402	(201024)	JA	92	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9948963 A2		WO 1999-US6379	19990324
US 7097890 B1		US 1998-127316	19980731
AU 9931130 A		AU 1999-31130	19990324
AU 757403 B		AU 1999-31130	19990324
BR 9909074 A		BR 1999-9074	19990324
CA 2325404 C		CA 1999-2325404	19990324
CN 1301280 A		CN 1999-806233	19990324
CN 1515608 A Div Ex		CN 1999-806233	19990324
CN 1129633 C		CN 1999-806233	19990324
DE 69921631 E		DE 1999-69921631	

19990324	
DE 69921631 T2 19990324	DE 1999-69921631
EP 1066337 A2	EP 1999-912859 19990324
EP 1066337 B1	EP 1999-912859 19990324
DE 69921631 E	EP 1999-912859 19990324
DE 69921631 T2	EP 1999-912859 19990324
NZ 506972 A	NZ 1999-506972 19990324
US 6254803 B1	US 1999-275329 19990324
US 6254804 B1 Div Ex	US 1999-275329 19990324
BR 9909074 A	WO 1999-US6379 19990324
EP 1066337 A2	WO 1999-US6379 19990324
NO 2000004746 A	WO 1999-US6379 19990324
JP 2003521552 W	WO 1999-US6379 19990324
MX 2000009326 A1	WO 1999-US6379 19990324
NZ 506972 A	WO 1999-US6379 19990324
EP 1066337 B1	WO 1999-US6379 19990324
DE 69921631 E	WO 1999-US6379 19990324
DE 69921631 T2	WO 1999-US6379 19990324
CA 2325404 C	WO 1999-US6379 19990324
MX 260085 B PCT Application	WO 1999-US6379 19990324
JP 2003521552 W	JP 2000-537934 19990324
MX 2000009326 A1	MX 2000-9326 20000922
MX 260085 B	MX 2000-9326 20000922
NO 2000004746 A	NO 2000-4746 20000922
US 6254804 B1	US 2000-745150 20001220
CN 1515608 A	CN 2003-130617 19990324
CN 100535040 C	CN 2003-130617 19990324
JP 2010070765 A Div Ex	JP 2000-537934 19990324
JP 2010070765 A	JP 2009-260629 20091116

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
AU 757403	B	Previous Publ	AU 9931130	A
DE 69921631	E	Based on	EP 1066337	A
DE 69921631	T2	Based on	EP 1066337	A
AU 9931130	A	Based on	WO 9948963	A
BR 9909074	A	Based on	WO 9948963	A
EP 1066337	A2	Based on	WO 9948963	A
AU 757403	B	Based on	WO 9948963	A
JP 2003521552	W	Based on	WO 9948963	A
MX 2000009326	A1	Based on	WO 9948963	A
NZ 506972	A	Based on	WO 9948963	A
EP 1066337	B1	Based on	WO 9948963	A
DE 69921631	E	Based on	WO 9948963	A
DE 69921631	T2	Based on	WO 9948963	A
CA 2325404	C	Based on	WO 9948963	A
MX 260085	B	Based on	WO 9948963	A

PRIORITY APPLN. INFO: US 1998-127316 19980731
NZ 1998-330077 19980325

INT. PATENT CLASSIF.:

MAIN:	C08K; C08K0005-09; C08L0101-02
SECONDARY:	B32B0027-18; B65D0001-09; B65D0085-50
IPC ORIGINAL:	B29D0022-00 [I,A]; B29D0022-00 [I,C]; B29D0023-00 [I,A]; B29D0023-00 [I,C]; B32B0001-00 [I,C]; B32B0001-08 [I,A]; C08K0005-00 [I,C]; C08K0005-09 [I,A]; C08K0005-09 [I,A];

	B65D0081-26 [I,A]; B65D0081-26 [I,C]; C08L0101-00 [I,C]; C08L0101-02 [I,A]
IPC RECLASSIF.:	B32B0027-18 [I,A]; B32B0027-18 [I,C]; B65D0001-00 [I,A]; B65D0001-00 [I,C]; B65D0085-50 [I,A]; B65D0085-50 [I,C]; C08F0022-00 [I,C]; C08F0022-04 [I,A]; C08F0008-00 [I,A]; C08F0008-00 [I,C]; C08F0008-00 [I,A]; C08F0008-00 [I,C]; C08K0005-00 [I,C]; C08K0005-00 [I,A]; C08K0005-00 [I,A]; C08K0005-09 [I,A]; C08L0101-00 [I,C]; C08L0101-02 [I,A]
ECLA:	B32B0027-18; B32B0027-36; C08F0008-00+210/02; C08K0005-00P
USCLASS NCLM:	252/188.280; 428/036.600
NCLS:	252/188.100; 252/188.250; 428/035.400; 428/036.700; 428/346.000; 428/518.000; 524/005.000; 524/006.000; 525/011.000; 525/032.000; 525/322.000; 525/330.600; 525/372.000; 525/374.000; 525/383.000; 525/384.000; 525/386.000; 526/317.100; 526/318.000; 526/318.400; 526/318.420
JAP. PATENT CLASSIF.:	
MAIN/SEC.:	B32B0027-18 G; B65D0001-00 A; B65D0085-50 Z; C08K0005-09; C08L0101-02
MAIN:	C08L0101-02
SECONDARY:	B65D0081-26 L
FTERM CLASSIF.:	3E033; 3E035; 4F100; 4J002; 3E067; 3E033/AA01; 4J002/AA01.1; 3E033/AA10; 3E035/AA20; 4F100/AA20.B; 4F100/AA20.E; 3E067/AB01; 4F100/AB33.B; 4F100/AB33.E; 3E067/AB81; 3E067/AB96; 4F100/AJ05.E; 4F100/AK01.A; 4F100/AK04.A; 4F100/AK04.D; 4F100/AK04.E; 4F100/AK07.D; 4F100/AK07.E; 4F100/AK12.A; 4F100/AK15.B; 4F100/AK15.D; 4F100/AK16.B; 4F100/AK17.D; 4F100/AK25.A; 4F100/AK25.D; 4F100/AK27.B; 4F100/AK41.A; 4F100/AK41.D; 4F100/AK41.E; 4F100/AK42.B; 4F100/AK45.A; 4F100/AK45.D; 4F100/AK46.A; 4F100/AK46.B; 4F100/AK46.D; 4F100/AK48.D; 4F100/AK51.A; 4F100/AK54.A; 4F100/AK69.B; 4F100/AK69.E; 4F100/AK80.A; 4F100/AL01.A; 4F100/AL01.D; 4F100/AL05.A; 4F100/AL05.D; 4F100/AT00.A; 4F100/AT00.E; 3E067/BA01.A; 3E035/BA02; 4F100/BA05; 4F100/BA07; 3E035/BA10; 4F100/BA10.E; 3E033/BA13; 4J002/BB02.1; 4J002/BB03.1; 4J002/BB07.1; 3E033/BB08; 4J002/BB10.1; 4J002/BB12.1; 4J002/BB20.1; 3E067/BB25.A; 4J002/BC02.1; 4J002/BC03.1; 4J002/BC04.1; 4J002/BC07.1; 3E035/BD02; 4J002/BD02.1; 4J002/BD03.1; 4J002/BD10.1; 4J002/BD12.1; 4J002/BE00.1; 4J002/BE03.1; 4J002/BE06.1; 4J002/BF00.1; 4J002/BG00.1; 4J002/BG02.1; 4J002/BG04.1; 4J002/BG05.1; 4J002/BG06.1; 4J002/BG12.1; 4J002/BH00.1; 4J002/BH01.1; 4J002/BH02.1; 3E067/CA06; 4F100/CA09.A; 4F100/CA09.H; 3E033/CA16; 3E067/CA24; 4F100/CA30.A; 4J002/CF00.1; 4J002/CF03.1; 4J002/CF04.1; 4J002/CF05.1; 4J002/CF06.1; 4J002/CF07.1; 4J002/CF08.1; 4J002/CF18.1; 4J002/CF22.1; 4J002/CG01.1; 4J002/CH00.1; 4J002/CK01.1; 4J002/CK02.1; 4J002/CL00.1; 4J002/CL01.1; 4J002/CL02.1; 4J002/CL03.1; 4F100/DA01; 4J002/DD07.6; 4F100/DG10.E; 4J002/ED05.8; 4J002/EE03.8; 3E067/EE32; 3E067/EE33; 4J002/EG04.6; 4J002/EG05.7; 4J002/EH07.6;

4F100/EH66.E; 4J002/EJ04.8; 4F100/EJ37.E;
4J002/EL07.8; 4J002/EL09.8; 4J002/EL10.8;
4J002/EN02.8; 4J002/EP01.6; 4J002/EU06.8;
4J002/EU23.8; 4J002/EV04.8; 4J002/EV31.8; 3E067/FC01;
4J002/FD03.0; 4J002/FD07.0; 4J002/FD20.0;
4J002/FD20.6; 4J002/FD20.7; 4J002/FD20.8; 3E067/GB13;
4F100/GB15; 4F100/GB16; 4F100/GB23; 3E067/GD01;
3E067/GD02; 4J002/GF00; 4J002/GG01; 4J002/GG02;
4F100/JD03; 4F100/JD03.B; 4F100/JL12.C

BASIC ABSTRACT:

WO 1999048963 A2 UPAB: 20091015

NOVELTY - A composition suitable for scavenging oxygen comprises a mixture of a polymer or lower molecular weight material containing substituted cyclohexene functionality and a transition metal catalyst.

DETAILED DESCRIPTION - A composition suitable for scavenging oxygen comprises a mixture of a polymer or lower molecular weight material containing substituted cyclohexene functionality of formula (I) and a transition metal catalyst. A = H or methyl;

either one or two B = a heteroatom containing linkage which attaches the cyclohexene ring to the material; and the other B = H or methyl.

INDEPENDENT CLAIMS are also included for: (a) an oxygen scavenger composition comprising a polymer or oligomer having at least one cyclohexene group, and a transition metal salt, compound or complex; (b) an oxygen scavenger composition comprising a polymeric backbone, cyclic olefinic pendant groups and linking groups linking the olefinic pendant groups to the polymeric backbone;

(c) an oxygen scavenger composition comprising a polymeric backbone, cyclic olefinic pendant groups, linking groups linking the olefinic pendent groups to the polymeric backbone and a transition metal catalyst; (d) an article suitable as a container which inhibits oxidation of contents by removing and inhibiting ingress of oxygen into the container from outside, where the article is the oxygen scavenging composition of (c); (e) a multilayer film comprising the article of (d) and at least one additional functional layer; (f) a layer suitable for scavenging oxygen as the oxygen scavenging composition of (c);

(g) an article for packaging comprising the layer of (f); (h) a process for making the polymer material of (b) selected from (trans)esterification, (trans)amidation) and direct polymerisation;

(i) a non-odorous oxygen scavenging polymer composition comprising monomers derived from cyclic hydrocarbon moieties having at least one cyclic allylic or cyclic benzylic hydrogen and a transition metal oxidation catalyst; and (j) a rigid container for food or beverage molded from a resin comprising (i).

USE - Used as food or beverage containers.

ADVANTAGE - The product gives minimal effect on odor and taste of packaged contents.

TECHNOLOGY FOCUS:

POLYMERS - Preferred Components: The material is blended with a carrier resin. The mixture further contains at least one photoinitiator. The heteroatom containing linkage contains an ester, ether, amide, imide, urethane or acetal group. The compound with the anhydride functionality comprises styrene maleic anhydride copolymer and the compound with isocyanate functionality comprises polyfunctional isocyanate. The polymeric backbone is ethylenic and the linking groups are selected from -O-(CHR)n-, -(C=O)-O-(CHR)n-, -NH-(CHR)n-, -O-(C=O)-(CHR)n-, -(C=O)-NH-((CHR)n- and -(C=O)-O-CHOH-CH2-O-, preferably -(C=O)-NH-(CHR)n where

R = H or 1-4C alkyl; and

n = 1-12.

The cyclic olefinic pendant groups are of formula (II).

Q1-4 and R = H, CH3 or C2H5, where when R is H, at least one of Q1-4 is -H;

m = -(CH2)n-; and

n = 0-4.

The polymeric backbone comprises monomers selected from ethylene and styrene. The cyclic olefinic pendant groups are grafted onto the linking groups of the polymeric backbone by an esterification, transesterification, amidation or transamidation reaction, which is a solution reaction or a reactive extrusion catalysed by a catalyst selected from strong non-oxidizing acids, tert. amines, Group I alkoxides, Group IVB alkoxides and Group IVA organometallics, preferably toluene sulfonic acid, sodium methoxide, tetrabutyl titanate, tetraisopropyl titanate, tetra-n-propyl-titanate, tetraethyl titanate, 2-hydroxy-pyridine or dibutyltin dilaurate. The polymeric backbone, linking groups and cyclic olefin pendant groups comprise repeating units of formula (III).

p+t+q = 100 mol.%;

p = greater than 0 mol.% of the total composition;

Z = aryl group, -(C=O)OR1, -O(C=O)R1 or alkyl aryl group of formula (IV);

R4 = -CH3, -C2H5, or -H;

R1 = -H, -CH3, -C2H5, -C3H7 or -C4H9;

R2, R3 = -H or -CH3;

X = -O-, -NH- , -(C=O)O-, -(C=O)NH-, -(C=O)S-, -O(C=O)- or -(CHR')l-;

l = 1-6;

Y = -(CHR)n-;

n = 0-12; and

R' = -H, -CH3 or -C2H5.

The cyclic olefinic pendant groups are selected from cyclohexene-4-methylene, 1-methyl cyclohexene-4-methylene, 2-methyl cyclohexene-4-methylene, 5-methyl cyclohexene-4-methylene, 1,2-dimethyl cyclohexene-4-methylene, 1,5-dimethyl cyclohexene-4-methylene, 2,5-dimethyl cyclohexene-4-methylene, 1,2,5-trimethyl cyclohexene-4-methylene, cyclohexene-4-ethylene, 1-methyl cyclohexene-4-ethylene, 2-methyl cyclohexene-4-ethylene, 5-methyl cyclohexene-4-ethylene, 1,2-dimethyl cyclohexene-4-ethylene, 1,5-dimethyl cyclohexene-4-ethylene, 2,5-dimethyl cyclohexene-4-ethylene, 1,2,5-trimethyl cyclohexene-4-ethylene, cyclohexene-4-propylene, 1-methyl cyclohexene-4-propylene, 2-methyl cyclohexene-4-propylene, 5-methyl cyclohexene-4-propylene, 1,2-dimethyl cyclohexene-4-propylene, 1,5-dimethyl cyclohexene-4-propylene, 2,5-dimethyl cyclohexene-4-propylene, 1,2,5-trimethyl cyclohexene-4-propylene, cyclopentene-4-methylene, 1-methyl cyclopentene-4-methylene, 3-methyl cyclopentene-4-methylene, 1.2-dimethyl cyclopentene-4-methylene, 3,5-dimethyl cyclopentene-4-methylene, 1,3-dimethyl cyclopentene-4-methylene, 2,3-dimethyl cyclopentene-4-methylene, 1,2,3-trimethyl cyclopentene-4-methylene, 1,2,3,5-tetramethyl cyclopentene-4-methylene, cyclopentene-4-ethylene, 1-methyl cyclopentene-4-ethylene, 3-methyl cyclopentene-4-ethylene, 1,2-dimethyl cyclopentene-4-ethylene, 3,5-dimethyl cyclopentene-4-ethylene, 1,3-dimethyl cyclopentene-4-ethylene, 2,3-dimethyl cyclopentene-4-ethylene, 1,2,3-trimethyl cyclopentene-4-ethylene, 1,2,3,5-tetramethyl cyclopentene-4-ethylene, cyclopentene-4-propylene, 1-methyl cyclopentene-4-propylene, 3-methyl cyclopentene-4-propylene, 1,2-dimethyl cyclopentene-4-propylene, 3,5-dimethyl cyclopentene-4-propylene, 1,3-dimethyl

cyclopentene-4-propylene, 2,3-dimethyl cyclopentene-4-propylene, 1,2,3-trimethyl cyclopentene-4-propylene, and 1,2,3,5-tetramethyl cyclopentene-4-propylene radicals. The transition metal catalyst is a metal, preferably cobalt, salt of cobalt neodecanoate, cobalt 2-ethylhexanoate, cobalt oleate or cobalt stearate.

The cyclic allylic monomers are of formulae (V)-(VII).

K, L, T1-4 = -H or -CqH2q+1, where if K or L is -H, then at least one of T1-4 is -H;

q = 0-12;

X and Y = -(CH2)n-, OH, -(CH2)n-NH2, -(CH2)n-NC=O or -(CH2)m-(C=O)-A;

n = 1-12;

m = 0-12;

A = -OH, -OCH3, -OC2H5, -OC3H7 or halides;

Q = -(CtH2t-2);

t = 1-4;

G = -(C=O)- or -(CnH2n+1); and

n = 0-12.

The cyclic benzylic monomers are of formulae (VIII)-(XIII).

X and Y = -(CH2)n-OH, -(CH2)n-NH2 and -(CH2)m-(C=O)-R1, or alternatively (CH2)n-OH, -(CH2)n-NH2, -(CH2)nNC=O or -(CH2)m-(C=O)-A;

n = 1-12;

m = 0-12;

R1 = -OH, -OCH3, -OC2H5, -OC3H7 or halides; T1-4 = -H or -CqH2q+1, at least one being -H;

q = 0-12;

A = -OH, -OCH3, -OC2H5, -OC3H7 or halides;

Z = -(CtH2t-2)-, -O-, -NR2-, or -S-;

t = 1-4;

R2 = -OH, -OCH3, -OC2H5, -OC3H7 or halides;

G = -(C=O)- or -(CnH2n+1)-; and

n = 0-12.

The photoinitiator has a UV absorption window above 320 nm.

Preferred Compositions: The composition further comprises a trigger enhancing component, selected from benzophenone and substituted benzophenone which makes the scavenger susceptible to triggering from an external event which is irradiation by electromagnetic radiation or UV light. The oxygen scavenger composition is in the form of a plastics resin comprising a polyester resin or a resin suitable for use in the manufacture of plastic films. The composition is prepared from the reaction of a tetrahydrophthalic anhydride, comprising 1,2,3,6-tetrahydrophthalic anhydride or tetrahydrophthalic anhydride monomer derivable from butadiene, with at least one of a diol, a hydroxy compound or a polyhydroxy compound, preferably in a solvent. Alternatively, the composition is prepared from the reaction of a tetrahydrobenzyl alcohol with one or more compounds having one or more of carboxylic acid, acid halide, ester, anhydride and isocyanate, preferably an ester using a reactive extrusion process or a transesterification process. The oxygen scavenger composition comprises a polyester and is prepared from cyclohexene dimethanol or from tetrahydrobenzaldehyde and a hydroxyl functional material. The oxygen scavenger composition comprises a polymer or oligomer having at least one cyclohexene group, where some C of the cyclohexene group form part of other ring structures within the polymer or oligomer. The oxygen scavenger composition comprising a pendant cyclic alkene group is prepared by a method where some C of the cyclohexene group form part of the skeleton of the polymer or oligomer. The oxygen

scavenger composition comprising a pendant cyclohexene group is prepared by a method including a Diels Alder addition reaction. The composition is incorporated in a sachet. The composition is an ethylene/methyl acrylate/cyclohexenyl methyl acrylate terpolymer, a cyclohexenyl methyl acrylate/ethylene copolymer, a cyclohexenyl methyl methacrylate/styrene copolymer, a cyclohexenyl methyl acrylate homopolymer or a methyl acrylate/cyclohexenyl methyl acrylate copolymer. Odor and taste characteristics of products packaged with material comprised of the composition are not adulterated as a result of oxidation of the composition which showed no significant fragmentation of the olefinic pendant groups and linking groups from the polymeric backbone. The composition further comprises at least one triggering material, preferably a photoinitiator, to enhance initiation of oxygen scavenging. The non-odorous oxygen scavenging polymer composition comprises condensation polymers selected from polyesters, polyamides, polycarbonate, polysulfones, polyurethane, polyureas and polyethers. The composition is a thermoplastic or a thermoset which is a multilayered structure, made by coextrusion, blow molding or lamination, with other layers which are an aromatic polyester or copolyester selected from polyethylene terephthalate, polyethylene naphthalate, polypropylene terephthalate, polybutylene terephthalate, polyethylene isophthalate, polycyclohexanedimethanol terephthalate, polybutylene naphthalate, polycyclohexanedimethanol naphthalate and their copolymers and blends. The other layers are preferably polyamides or copolyamides selected from Nylon-6, Nylon-6,6 and/or Nylon-6,10, or bisphenol A carbonate. Alternatively, the other layers are vinylic polymers or copolymers selected from ethylene, propylene, styrene, acrylate, (di)vinyl chloride or fluorinated vinyl (co)polymer, and their mixtures. The multilayer comprises an outer air contact layer comprising an oxygen barrier resin selected from polyethylene terephthalate and/or polyethylene naphthalate, and an inner oxygen scavenging layer. The composition further comprises at least one inner food contact layer, a tie layer and a tinted UV protection layer. The composition is laminated or adhered onto a substrate selected from paper, foil, high temperature film, metallized film, polyamide films, ethylene vinyl alcohol film, silica coated film, nylon/EVOH/nylon, oriented polypropylene, polyester film, polyethylene, polypropylene, polyester, oriented polyethylene terephthalate and cellophane. The composition comprises a vinyl polymer selected from ethylene polymer, ethylene copolymer, propylene polymer, propylene copolymer, styrene polymer and/or styrene copolymer. The container further comprises a tinted UV protection layer located between the layer comprising the non-odorous oxygen scavenging composition and the inside of the rigid container. The tinted layer is the food contact layer.

Preferred Article: The article is a package comprising a flexible film having a thickness of at most 10 mil or a flexible sheet having a thickness of at least 10 mil. The oxygen scavenging system of the package comprises at least one additional layer selected from oxygen barrier layers, polymeric selective layers and heat seal layers, preferably an oxygen barrier layer. The article is a package with a food product located within the package or a package for packaging a cosmetic, chemical, electronic device, pesticide or a pharmaceutical composition. Alternatively,

the article is a rigid container, sealing gasket, patch, container disclosure device, bottle cap insert or molded or thermo formed shape of a bottle or tray. The layer in addition comprises polymeric diluent of a thermoplastic polymer. The layer is adjacent to one or more additional layers of oxygen barrier comprising a member selected from poly(ethylene-vinyl alcohol), polyacrylonitrile, poly(vinyl chloride), polyamides, poly(vinylidene dichloride), poly(ethylene terephthalate), silica, metal foil and metallized polymeric films. One or more of the additional layer(s) is coextruded with the layer, laminated onto the layer or coated onto the layer. The layer is flexible and/or transparent. The rigid container is suitable for packaging oxygen sensitive drinks such as beer for extended freshness and shelf life.

Preferred Process: The polymer material is made by:

(i) selecting polymers from styrene/maleic anhydride, ethylene/maleic anhydride, ethylene/acrylic acid, ethylene/methacrylic acid, acrylic acid, methacrylic acid, styrene/methacrylic acid, ethylene/methyl methacrylate, ethylene/ethyl acrylate, ethylene/butyl acrylate, methyl methacrylate, methyl acrylate, and styrene/methyl methacrylate to form a mixture and combining the polymers with a (trans)esterifying, or (trans)amidising compound selected from the compounds of the cyclic olefinic pendant groups which are not radicals;

(ii) heating the polymers and (trans)esterifying or (trans)amidising the compounds to form a polymer melt;

(iii) processing the melt in an extruder under (trans)esterification or (trans)amidisation conditions with catalysts and antioxidants protecting the melt from oxidation during extrusion, so that the polymer melt undergoes esterification of polymeric anhydrides with cyclic olefin pendant groups, esterification of polymeric acids with cyclic olefin pendant groups or exchange of alkyl groups of polymeric esters with cyclic olefin pendant groups; and

(iv) removing volatile organic products and byproducts from the melt.

Alternatively, the making of the polymer material comprises:

(i) adding to an autoclave, ethylene and a vinyl monomer comprising a pendant cyclohexene, optionally with an alpha-olefin;

(ii) stirring the ethylene and the vinyl monomer and the optional alpha-olefin in the autoclave to achieve a mixture;

(iii) adding a polymerization initiator before, during or after the stirring step;

(iv) polymerizing the mixture to achieve a polymer; and

(v) isolating and purifying the polymer.

EXTENSION ABSTRACT:

EXAMPLE - 50 g of thionyl chloride were added to 27.6 g of 3-cyclohexene-1-carboxylic acid and the solution was stirred for 2 hours at 50 degrees C. Excess thionyl chloride was removed under vacuum and the resulting yellow brown oil was purified by distillation under vacuum (b.pt. 80-82 degrees C at 18-19 mmHg) to give 3-cyclohexene-1-carbonyl chloride. In a 250 ml flask fitted with a drying tube was placed 18.7 g of 3-cyclohexene-1-carbonyl chloride and 40 cc of methylene chloride. A solution of 9.6 g of triethylene glycol in 20 ml of methylene chloride was added and the reaction was stirred for 2 hours at room temperature, by which time the evolution of hydrochloric acid had ceased. 80 ml of 10% aqueous sodium bicarbonate were added to the reaction mixture and the mixture was vigorously stirred for 45 minutes. The organic layer was collected, washed with water and then dried with magnesium

sulfate. The methylene chloride was removed under reduced pressure giving a colorless oil. The cyclohexene oil was compounded into a film using 12 pts.weight oil, 5 pts.weight silica, 0.3 pts.weight benzophenone, 0.28 pts.weight cobalt(III)acetylacetonate and 90 pts.weight ethylene vinyl acetate copolymer (18% EVA). A similar film was prepared using sunflower seed oil in place of the cyclohexene based oil. Both films were exposed to 4 minutes of UV light, then sealed in oxygen barrier bags and stored in the dark. Both materials scavenged oxygen after photoexposure and the sunflower oil based material was a faster scavenger than the cyclohexene oil based material. However, gas chromatography of the headspace of the bags post oxidation revealed that there was a very large difference in the levels of volatile components. The cyclohexene based material produced less than 3% of the volatile components produced by the sunflower oil based material. The cyclohexene based films were stable for more than 300 days if stored at room temperature in the absence of light (i.e. the oxygen concentration in a sealed package containing the film specimens was essentially unchanged after storage for this time period). A similar cyclohexene based film was prepared, this time using 3,4-dimethyl-3-cyclohexene-1-carbonyl chloride as the starting material. This film was a much faster oxygen absorber than the film prepared from the unsubstituted product. This film produced less than 10% of the total volatile components produced from an equivalent film made from sunflower oil. The dimethyl cyclohexene based films were stable for at least 200 days when stored at room temperature in the absence of light. The stability of similar vegetable oil based films was limited to around 50 days. The experiment revealed that cyclohexene functionalized materials were effective oxygen absorbers, the speed of reaction may be increased by substituting methyl groups adjacent to the double bond, cyclic alkene based materials produced much lower levels of volatile oxidation products than linear alkene based materials, and the storage stability of cyclohexene containing films was excellent.

FILE SEGMENT: CPI; GMPI
MANUAL CODE: CPI: A08-A06; A08-S08; A09-A; A09-A08; A10-E01; A12-P01; E05-L02B; E11-Q02; E31-D02; J01-E02B

L40 ANSWER 14 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1998-112663 [199811] WPIX
CROSS REFERENCE: 2004-100942
DOC. NO. CPI: C1998-037105 [199811]
TITLE: Modified starch giving very good effect with hydrophobic paper sizing agent - are cationised and hydroxy-alkylated and/or alkyl-esterified amylo-pectin starch and amphoteric amylo-pectin potato starch, useful in water-based size, surface size and paper coating composition or in paper pulp
DERWENT CLASS: A11; A97; D17; F09; G02
INVENTOR: GRUELL D; KUBADINOW N; WASTYN M
PATENT ASSIGNEE: (SUED-N) SUEDZUCKER AG MANNHEIM/OCHSENFURT; (ZUCK-N) ZUCKERFORSCHUNG TULLN GMBH
COUNTRY COUNT: 23

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 824161 <--	A2	19980218	(199811)*	DE	20[0]	
AT 9700270 <--	A	19980515	(199824)	DE		

AT 404606 B 19981115 (199851) DE
<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 824161 A2		EP 1997-890129	19970708
AT 9700270 A		AT 1997-270	19970218
AT 404606 B		AT 1997-270	19970218

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AT 404606 B	Previous Publ	AT 9700270 A

PRIORITY APPLN. INFO: AT 1997-270 19970218
AT 1996-1444 19960812

INT. PATENT CLASSIF.:

IPC RECLASSIF.: C08B0035-00 [I,C]; C08B0035-06 [I,A]; D21H0017-00 [I,C]; D21H0017-28 [I,A]; D21H0017-29 [I,A]; D21H0019-00 [I,C]; D21H0019-54 [I,A]; D21H0021-14 [N,C]; D21H0021-16 [N,A]; D21H0023-00 [I,A]; D21H0023-00 [I,C]

ECLA: C08B0035-06; D21H0017-29; D21H0019-54

ICO: N21H0021:16

BASIC ABSTRACT:

EP 824161 A2 UPAB: 20060114 (a) Cationised and hydroxyalkylated and/or alkyl-esterified amylopectin starch (I) and (b) amphoteric amylopectin potato starch (II) are new. In (I), the hydroxyalkyl and alkyl ester groups have a 1-6 carbon (C) chain, the degree of cationisation is 0.005-0.4 and the degree of hydroxyalkylation and/or alkyl esterification is 0.005-0.75. In (II), the degree of cationisation is 0.001-0.4, preferably 0.001-0.2, especially 0.005-0.1 and the degree of anionisation is 0.005-0.4, preferably 0.005-0.2, especially 0.008-0.1.

Also claimed are (i) water-based paper sizes; (ii) water-based surface sizing agents for paper; (iii) paper coating compositions; (iv) additives to pulp for paper manufacture; and (v) paper produced using any of these. Preferably (I) has a degree of cationisation of 0.015-0.2, especially X226F 0.12, more especially 0.035-0.06 and degree of hydroxyalkylation and/or alkyl esterification of 0.015-0.2, especially 0.02-0.1. (I) is based on wax maize starch or potato starch and especially is cationised propoxylated starch.

USE - (I) is used in paper manufacture. (II), optionally combined with usual ancillaries and components, is used as additive to pulp for paper manufacture. The sizes, agents, coating compositions and additives are used in the manufacture of paper or surface-treated paper, and the coating compositions are used as size, for strengthening paper, as surface pigmentation agent, surface size, film-forming agent or dust- binding agent (all claimed).

ADVANTAGE - Very good properties and results are obtained with hydrophobic paper sizing agents, e.g. alkenylsuccinic anhydrides, fatty isocyanates and especially alkylketene dimers as cellulose- reactive sizes if they are used in combination with special starch derivatives, preferably derivatives of amylopectin starch, especially from potato starch. Cationised amylopectin potato starch is twice as effective of standard starch or wax maize starch derivatives. The polyelectrolyte properties of (I) greatly reduces the formation of stickies and eliminates or reduces the need to add aluminium sulphate to systems with a high calcium and/or magnesium content. (II) improve draining and the total, ash and starch retention in paper compositions with high conductivity, high calcium concentration or a high fraction of waste

paper. In bulk sizing, they reduce the amount of size needed for given results and also give better interaction with other synthetic additives.

DOCUMENTATION ABSTRACT:

EP824161

(a) Cationised and hydroxyalkylated and/or alkyl-esterified amylopectin starch (I) and (b) amphoteric amylopectin potato starch (II) are new. In (I), the hydroxyalkyl and alkyl ester groups have a 1-6 carbon (C) chain, the degree of cationisation is 0.005-0.4 and the degree of hydroxyalkylation and/or alkyl esterification is 0.005-0.75. In (II), the degree of cationisation is 0.001-0.4, preferably 0.001-0.2, especially 0.005-0.1 and the degree of anionisation is 0.005-0.4, preferably 0.005-0.2, especially 0.008-0.1.

Also claimed are:

(i) water-based paper sizes;

(ii) water-based surface sizing agents for paper;

(iii) paper coating compositions;

(iv) additives to pulp for paper manufacture; and

(v) paper produced using any of these.

USE

(I) is used in paper manufacture. (II), optionally combined with usual ancillaries and components, is used as additive to pulp for paper manufacture. The sizes, agents, coating compositions and additives are used in the manufacture of paper or surface -treated paper, and the coating compositions are used as size, for strengthening paper, as surface pigmentation agent, surface size, film-forming agent or dust-binding agent (all claimed).

ADVANTAGE

Very good properties and results are obtained with hydrophobic paper sizing agents, e.g. alkenylsuccinic anhydrides, fatty isocyanates and especially alkylketene dimers as cellulose-reactive sizes if they are used in combination with special starch derivatives, preferably derivatives of amylopectin starch, especially from potato starch. Cationised amylopectin potato starch is twice as effective of standard starch or wax maize starch derivatives. The polyelectrolyte properties of (I) greatly reduces the formation of stickies and eliminates or reduces the need to add aluminium sulphate to systems with a high calcium and/or magnesium content. (II) improve draining and the total, ash and starch retention in paper compositions with high conductivity, high calcium concentration or a high fraction of waste paper. In bulk sizing, they reduce the amount of size needed for given results and also give better interaction with other synthetic additives.

CLAIMED SIZES

CLAIMED SURFACE SIZING AGENTS

CLAIMED COATING COMPOSITIONS

CLAIMED ADDITIVES

The sizes contain a sizing agent, a dispersant or emulsifier based on (I) and usual ancillaries and additives. The sizing agent is either (a) an alkylketene dimer, preferably a 6-30 C alkylketene dimer, as cellulose-reactive size; or (b) a system based on cyclic dicarboxylic anhydrides of formula (IIIA), acid anhydrides or formula R3-COO-COR4 (IIIB), isocyanates of formula R5N=C=O (IIIC) as cellulose-reactive size and/or polymer size, especially based on (meth) acrylic ester, styrene or acrylonitrile; in which R1 = 1 2-3 C

group; R2 = 7-30 C hydrocarbyl; R3, R4, R5 = 7-30 C hydro carbyl. (I) contains < 20%, especially 0-8%, more especially 0-3% amylose. It especially is obtained from potatoes modified by microbiological methods, more especially from genetically-modified potatoes. It may be crosslinked and/or in the form of a starch graft polymer. The starch may also be degraded by acid, oxidation and/or enzymatic, thermal and/or thermochemical methods.

These agents are based on (I) and optionally usual components of surface sizes.

The paper coating compositions contain a binder based on an amylopectin potato starch and optionally usual components. This starch contains < 20%, preferably 0-8%, especially 0-3% amylose. It especially is obtained from potatoes modified by microbiological methods, more especially from genetically-modified potatoes. It may be degraded, crosslinked and/or in the form of a derivative. Starch degraded by acid, oxidation and/or enzymatic, thermal and/or thermochemical methods is especially suitable. The starch may contain ester and/or ether groups, especially diethylaminoethyl, hydroxypropyltrimethylammonium salt, hydroxyethyl, hydroxypropyl, hydroxypropyl sulphonate, hydroxybutyl, hydroxypentyl, hydroxyhexyl, carboxymethyl, cyanoethyl, carbamoyl ethyl ether, formyl, acetyl, propionyl, butyryl, succinyl, octenylsuccinyl, sulphonyl, sulphate, phosphate and/or carbamic ester groups. (I) is especially suitable. Graft polymers, preferably with acrylic compounds, e.g. acrylamide, methyl methacrylate, ethyl acrylate or acrylonitrile, vinyl compounds, e.g. vinyl acetate or styrene, and/or butadiene are also suitable. The coating compositions may also contain natural and degraded starches and starch derivatives derived from other plants, cellulose, cellulose derivatives, other hydrocolloids or derivatives, proteins or derivatives, synthetic (co)binders, natural or synthetic ancillaries, pigments, fillers and/or other additives.

The additive to paper pulp contains (I), especially as used in sizes, or (II), including depolymerised and/or crosslinked (II) and/or as starch graft polymer, especially (II) with the same amylose content and derived from potatoes modified in the same way as for (I).

PREPARATION

(disclosed) Modification can be carried out by hydroxyalkylation with alkylene oxides, especially epoxypropane; esterification with anhydrides of organic acids, especially monocarboxylic acids; cationisation by introducing amino, imino, ammonium, sulphonium or phosphonium groups or with cationic polymers, e.g. poly ethylene-imines, polyamines, polyamido-amines, polydiallyldimethylammonium chloride, cationic polyacrylamide, polyamidoamine-epichlorohydrin resins, polyvinylamine or partly hydro lysed polyvinylformamide, and anionisation.

EXAMPLE

The viscosity stability values of (A) depolymerised amylopectin potato starch, (B) depolymerised normal potato starch and (C) cationised hydroxypropylated potato starch were compared. Samples of starch were depolymerised by acid-catalysed degradation. A 37 weight% suspension of the starch in water was treated with 14.3 g 30% hydrochloric acid/100 g starch and degraded for 7 hours at 50°C. The suspension was then cooled, neutralised with soda, washed, filtered and dried. Amylopectin potato starch was converted to a derivative by reaction with propylene oxide (degree of substitution (DS) 0.05) and 2,3-epoxypropyl- trimethylammonium

chloride (DS 0.045). 20% depolymerised starch sus pension in water were boiled at 95°C for 15 minutes and the viscosity of the paste was determined during cooling and after storage at 25°C. The Brookfield viscosity was (A) 36, (B) 48, (C) 34 mPa.s at 80°C; (A) 48, (C) 44 mPa.s at 50°C; (A) 95, (C) 88 mPa.s at 25°C; (A) 120, (C) 92 mPa.s after 1 hour at 25°C; and (A) gel, (C) 102 mPa.s after 24 hours at 25°C. (B) had gelled at 50°C and remained a gel. (SN)

PREFERRED MODIFIED STARCH

(I) has a degree of cationisation of 0.015-0.2, especially X226F 0.12, more especially 0.035-0.06 and degree of hydroxyalkylation and/or alkyl esterification of 0.015-0.2, especially 0.02-0.1. (I) is based on wax maize starch or potato starch and especially is cationised propoxylated starch.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A10-E01; A12-B03A; A12-W06D; D06-H01; F05-A06B; F05-A06C; G02-A05C

L40 ANSWER 15 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1998-032601 [199803] WPIX
DOC. NO. CPI: C1998-011087 [199803]
TITLE: New thermoplastic compound used to prepare e.g. moulded articles - comprises thermoplastic (co)polymer with reactive or graftable site(s) and hyper-branched dendritic macromolecule
DERWENT CLASS: A28
INVENTOR: BOOGH L; EDVIN J; MANSSON E; MANSSON J E; PETTERSSON B; SOERENSEN K; SORENSEN K
PATENT ASSIGNEE: (PEST-C) PERSTORP AB
COUNTRY COUNT: 75

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9745474	A1	19971204	(199803)*	EN	73[0]	
<--						
SE 9602019	A	19971129	(199809)	SV		
<--						
AU 9729854	A	19980105	(199821)	EN		
<--						
SE 509240	C2	19981221	(199906)	SV		
<--						
EP 902803	A1	19990324	(199916)	EN		
<--						
CN 1223675	A	19990721	(199947)	ZH		
<--						
JP 2000511219	W	20000829	(200045)	JA	81	
<--						
US 6225404	B1	20010501	(200126)	EN		
<--						
EP 902803	B1	20040922	(200462)	EN		
DE 69730828	E	20041028	(200471)	DE		
CN 1098881	C	20030115	(200532)	ZH		
<--						
DE 69730828	T2	20050922	(200562)	DE		
CA 2256343	C	20051206	(200624)	EN		
JP 4135980	B2	20080820	(200857)	JA	31	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9745474 A1		WO 1997-SE822	19970521
SE 9602019 A		SE 1996-2019	19960528
SE 509240 C2		SE 1996-2019	19960528
AU 9729854 A		AU 1997-29854	19970521
CA 2256343 C		CA 1997-2256343	19970521
CN 1223675 A		CN 1997-195883	19970521
CN 1098881 C		CN 1997-195883	19970521
DE 69730828 E 19970521		DE 1997-69730828	
DE 69730828 T2 19970521		DE 1997-69730828	
EP 902803 A1		EP 1997-924434	19970521
EP 902803 B1		EP 1997-924434	19970521
DE 69730828 E		EP 1997-924434	19970521
DE 69730828 T2		EP 1997-924434	19970521
JP 2000511219 W		JP 1997-542162	19970521
EP 902803 A1		WO 1997-SE822	19970521
JP 2000511219 W		WO 1997-SE822	19970521
US 6225404 B1		WO 1997-SE822	19970521
EP 902803 B1		WO 1997-SE822	19970521
DE 69730828 E		WO 1997-SE822	19970521
DE 69730828 T2		WO 1997-SE822	19970521
CA 2256343 C		WO 1997-SE822	19970521
US 6225404 B1		US 1999-194515	19990304
JP 4135980 B2		JP 1997-542162	19970521
JP 4135980 B2		WO 1997-SE822	19970521

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
DE 69730828	E	Based on	EP 902803	A
DE 69730828	T2	Based on	EP 902803	A
AU 9729854	A	Based on	WO 9745474	A
EP 902803	A1	Based on	WO 9745474	A
JP 2000511219	W	Based on	WO 9745474	A
US 6225404	B1	Based on	WO 9745474	A
EP 902803	B1	Based on	WO 9745474	A
DE 69730828	E	Based on	WO 9745474	A
DE 69730828	T2	Based on	WO 9745474	A
CA 2256343	C	Based on	WO 9745474	A
JP 4135980	B2	Previous Publ	JP 2000511219	W
JP 4135980	B2	Based on	WO 9745474	A

PRIORITY APPLN. INFO: SE 1996-2019 19960528

INT. PATENT CLASSIF.:

MAIN:	C08G0063-20; C08G0081-00; C08G0083-00
SECONDARY:	C08G0063-20
IPC ORIGINAL:	B29C0047-04 [I,A]; B29C0047-04 [I,C]; C08G0063-00 [I,A]; C08G0063-00 [I,C]; C08G0083-00 [I,A]; C08G0083-00 [I,C]; C08K0003-00 [I,A]; C08K0003-00 [I,C]; C08K0005-00 [I,A]; C08K0005-00 [I,C]; C08K0007-00 [I,C]; C08K0007-14 [I,A]; C08L0101-00 [I,A]; C08L0101-00 [I,C]; C08L0087-00 [I,A]; C08L0087-00 [I,C]
IPC RECLASSIF.:	B29C0047-04 [I,A]; B29C0047-04 [I,C]; C08G0063-00

[I,A]; C08G0063-00 [I,C]; C08G0081-00 [I,A];
C08G0081-00 [I,C]; C08G0081-02 [I,A]; C08G0083-00
[I,A]; C08G0083-00 [I,C]; C08J0005-00 [I,A];
C08J0005-00 [I,C]; C08K0003-00 [I,A]; C08K0003-00
[I,C]; C08K0005-00 [I,A]; C08K0005-00 [I,C];
C08K0007-00 [I,C]; C08K0007-14 [I,A]; C08K0009-00
[I,A]; C08K0009-00 [I,C]; C08L0101-00 [I,A];
C08L0101-00 [I,C]

ECLA: C08G0081-00; C08G0081-02F; C08G0083-00D

USCLASS NCLM: 525/054.100

NCLS: 525/054.200; 525/054.300; 525/070.000; 525/071.000; 525/073.000; 525/077.000; 525/078.000; 525/079.000; 525/080.000; 525/083.000; 525/084.000; 525/087.000; 525/092.00C; 525/092.00J; 525/095.000

JAP. PATENT CLASSIF.:

MAIN/SEC.: B29C0047-04; C08G0063-00; C08G0083-00; C08J0005-00; C08K0003-00; C08K0005-00; C08K0007-14; C08K0009-00; C08L0101-00; C08L0087-00

MAIN: C08G0083-00

SECONDARY: B29C0047-04; C08G0063-00; C08K0003-00; C08K0005-00; C08K0007-14; C08L0101-00; C08L0087-00

FTERM CLASSIF.: 4F071; 4F207; 4J002; 4J029; 4J031; 4F071/AA02; 4J029/AA02; 4F071/AA03; 4F207/AA03; 4F071/AA04.X; 4F071/AA04; 4F071/AA09.X; 4F071/AA09; 4F071/AA10.X; 4F071/AA10; 4F207/AA11; 4F071/AA12.X; 4F071/AA14.X; 4F071/AA14; 4F071/AA15.X; 4F071/AA20.X; 4F071/AA21.X; 4F071/AA22.X; 4F071/AA23.X; 4F071/AA23; 4F071/AA24.X; 4F207/AA24; 4F071/AA25.X; 4F071/AA26.X; 4F071/AA27.X; 4F071/AA28.X; 4F071/AA28; 4F071/AA29.X; 4F071/AA29; 4F071/AA30.X; 4F071/AA31.X; 4F071/AA32.X; 4F071/AA32; 4F071/AA33.X; 4F071/AA33; 4F071/AA34.X; 4F071/AA34; 4F071/AA35; 4F071/AA36.X; 4F071/AA37.X; 4F071/AA39.X; 4F071/AA40.X; 4F071/AA40; 4F071/AA41; 4F071/AA42; 4F071/AA43; 4F071/AA45.X; 4F071/AA45; 4F071/AA46.X; 4F071/AA49; 4F071/AA50.X; 4F071/AA50; 4F071/AA51.X; 4F071/AA51; 4F071/AA53; 4F071/AA54.X; 4F071/AA54; 4F071/AA56; 4F071/AA59; 4F071/AA60.X; 4F071/AA60; 4F071/AA63.X; 4F071/AA63; 4F071/AA64.X; 4F071/AA67.X; 4F071/AA67; 4F071/AA69.X; 4F071/AA69; 4F071/AA77; 4F071/AA78; 4F071/AA81; 4J002/AB01.3; 4J029/AB01; 4F071/AB03; 4F071/AB06; 4F071/AB08; 4F207/AB11; 4F207/AB25; 4F071/AB28; 4F071/AB30; 4J002/AC02.3; 4J002/AC02.4; 4J029/AC05; 4F071/AC08.A; 4F071/AC16; 4F071/AD01; 4F071/AD02; 4J029/AD10; 4F071/AE02.A; 4F071/AE03.A; 4F071/AE05; 4F071/AE07; 4F071/AE09; 4F071/AE11; 4F071/AE17; 4F071/AF05; 4F071/AF13; 4F071/AF14; 4F071/AF15; 4F071/AF17; 4F071/AF19; 4F071/AF20; 4F071/AF23; 4F071/AF43; 4F071/AF53; 4F207/AG01; 4F207/AG03; 4F071/AG12; 4F071/AG21; 4F071/AH03; 4F071/AH07; 4F071/AH12; 4F071/AH19; 4F207/AH23; 4F207/AH31; 4F207/AH47; 4F207/AH48; 4F071/BA01; 4J031/BA07; 4J031/BA09; 4J031/BA28; 4J002/BB00.3; 4J031/BB01; 4J031/BB02; 4F071/BB03; 4F071/BB05; 4J002/BB21.1; 4F071/BC01; 4F071/BC09; 4J002/BD00.3; 4J031/BD05; 4J031/BD10; 4J031/BD19; 4J031/BD23; 4J002/BE02.3; 4J002/BF02.3; 4J002/BG01.3; 4J002/BG10.3; 4J002/BN01.W; 4J002/BN05.W; 4J002/BN12.W; 4J002/BN14.W; 4J002/BN17.W; 4J002/BN18.1; 4J002/BN23.W; 4J002/CE00.3; 4J002/CF01.X; 4J002/CF04.3; 4J002/CF10.X;

4J002/CG00.3; 4J002/CH01.3; 4J002/CH02.3;
4J002/CH06.3; 4J002/CL00.3; 4J002/CL06.4;
4J002/CM04.3; 4J002/CN01.3; 4J002/CP03.3;
4J002/DA02.7; 4J002/DA03.6; 4J002/DA08.6;
4J002/DJ05.7; 4J002/DL00.6; 4J029/EA05; 4J002/FA04.4;
4J002/FA04.6; 4J002/FA08.6; 4J002/FB10.6;
4J002/FB14.6; 4J029/FC08; 4J002/GC00; 4J002/GL00;
4J002/GN00; 4J029/JA19; 4F207/KA01; 4J029/KD07;
4J029/KE03

BASIC ABSTRACT:

WO 1997045474 A1 UPAB: 20060113 comprises thermoplastic polymer or copolymer with reactive or graftable site(s) and hyperbranched dendritic macromolecule, composed of monomeric or polymeric nucleus with epoxide, hydroxyl, carboxyl and/or anhydride group(s) and optionally interspaced branching generations comprising monomer or polymeric branching chain extruder

USE - (I) is useful for the manufacture of aeronautic, nautic, household, automotive, sporting, leisure, commodity, electric and electronic goods and articles as well as interior and exterior building materials.

ADVANTAGE - (I) has good compatibilising properties. (XI) has improved mechanical properties.

DOCUMENTATION ABSTRACT:

WO1997045474

New thermoplastic compound (I) comprises at least one thermoplastic polymer or copolymer (II). (II) has reactive or graftable site(s) (F1) and (II) is compounded with hyperbranched dendritic macromolecule(s) (III). (III) is composed of a monomeric or polymeric nucleus (IV). (IV) has reactive epoxide, hydroxyl, carboxyl or anhydride group(s). 1-100 (2-8) branching generations (V) are added to (IV) and comprise monomer or polymeric branching chain extruder(s) (VI). (VI) has at least three reactive groups including hydroxyl, and carboxyl or anhydride. (V) are optionally interspaced by spacing generation(s) (VII). (VII) comprises spacing chain extender(s) (VIII). (VIII) has hydroxyl and, a carboxyl or anhydride reactive groups, or is an inner ether, preferably a lactone. (III) is optionally chain terminated by monomeric or polymeric chain stopper(s) (IX) and/or functionalised. (IX) has reactive or graftable site(s) (F2) that are reactive to or graftable onto (F1).

Also claimed are: (i) a thermoplastic composition (X) containing (I); (ii) a thermoplastic article (XI) containing (I).

USE

(I) is useful for the manufacture of aeronautic, nautic, household, automotive, sporting, leisure, commodity, electric and electronic goods and articles as well as interior and exterior building materials.

ADVANTAGE

(I) has good compatibilising properties. (XI) has improved mechanical properties.

EXAMPLE

A hyperbranched dendritic polyester macromolecule was prepared by mixing 308.9 g pentaerythritol pentethoxylate, 460.5 g 2,2-dimethanolpropanic acid and 0.46 g 96% w/w sulphuric acid at 120°C for 20 minutes. Temperature was raised to 140°C and a vacuum applied (30-50 mm Hg) for 4 hours. The acid value was 70 mgKOH/g and a further 460.5 g 2,2-dimethylolpropionic acid and 0.7 g sulphuric acid added over 15 minutes. The mixture was heated for a another 4 hours.

40 g of the resulting product (acid value of 10.2 mgKOH/g, hydroxyl value of 500 mg KOH/g and mol. weight of 1824) was mixed with 3700 g of polypropylene grafted with maleic anhydride (0.46 weight%) at 180°C to bond the grafted polypropylene to the macromolecule. The product was extruded and pelletised.

(RB)

PREFERRED MATERIALS

(II) is polyalkylene, poly(alkylene oxide), poly(oxy-alkylene), poly(haloalkylene), poly(alkylene phthalate or terephthalate), poly(phenyl or phenylene), poly(phenylene oxide or sulphide), poly(vinyl acetate), poly(vinyl alcohol), poly(vinyl halide), poly(vinylidene halide), poly(vinyl nitrile), polyamide, polyimide, polycarbonate, polysiloxane, poly(acrylic or methacrylic acid), poly(acrylate or methacrylate), cellulose (derivative) or synthetic rubber. (II) has a molecular weight of 500-500,000 (5,000-50,000).

(IV) and (VI) are most preferably 2,2-dimethylolpropionic acid, α,α-bis(hydroxymethyl)butyric acid, α,α,α-tris(hydroxymethyl)acetic acid, α,α-bis(hydroxymethyl)valeric acid, α,α-bis(hydroxy)-propionic acid, 3,5-dihydroxybenzoic acid, or α,β-dihydroxypropionic acid (or for (VI), heptonoic acid, citric acid, d-or l-tartaric acid, dihydroxymalonic acid and/or d-gluconic acid).

(VIII) is most preferably hydroxyacetic acid, hydroxyvaleric acid, hydroxypropanoic acid, hydroxypivalic acid, glycolide, δ-valerolactone, β-propiolactone and/or ε-caprolactone.

(IX) most preferably linseed, (epoxidised) soybean, tall oil and/or dehydrated castor fatty acids, formic, acetic, propionic, butanoic, hexanoic, acrylic, methacrylic, crotonic lauric, capric, caprylic, benzoic, behenic, monotonic, p-tert.butylbenzoic, abietic and/or sorbic acid, 1-chloro-2, 3-epoxypropane, 1, 4-dichloro-2, 3-epoxybutane, trimethylolpropane diallyl ether maleate, 5-methyl- and/or 5-ethyl- 5-hydroxymethyl-1, 3-dioxane and/or pentaerythritol (triethoxylate) triacrylate, (trimethylolpropane) diallyl and/or pentaerythritol triacrylate ether, and/or phenyl, toluene-2, 4-di-, toluene-2, 6-di-, hexamethylene di- and/or isophorone di- isocyanate.

(F1) and (F2) are hydroxyl, epoxide, carboxyl, anhydride, amine, amide, imide, cyano, sulphonate, halide, ester or alkenyl groups. (F1) may be an abstractable hydrogen.

(II) is a graft polymer or copolymer composed of at least one unsaturated monomer grafted onto a thermoplastic polymer or copolymer with (preferably end standing) (F1).

The monomer most preferably is acrylic acid, methacrylic acid, crotonic acid, maleic anhydride, fumaric acid, hydroxyalkylacrylate, hydroxyalkyl-methacrylate or acrylonitrile.

PREFERRED COMPOSITION

(X) contains 0.001-75 (0.1-15)%, (I), a surface treated reinforcing material, preferably glass fibres or particles treated with a silane, preferably methacrylisilane and/or aminosilane, a pigment, a modifying, fire retarding and/or lubricating additive such as chalk, mica or graphite, aramid fibres, steel fibres and/or thermoplastic fibres.

PREFERRED ARTICLE

(XI) is laminated, sheet moulded to form a composite structure

in the form of an overlay, underlay or intermediate layer with at least one other thermoplastic compound, metal, cellulose based substrate and/oar a thermosetting material (XII).

(XII) is a polyester, epoxide, bismaleimide, phenol-formaldehyde, polyimide, isocyanate or polyurethane.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A02-B; A02-C; A05-A01B; A05-E01A2; A10-C03; A10-E01

L40 ANSWER 16 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1997-261192 [199724] WPIX
DOC. NO. CPI: C1997-084554 [199724]
DOC. NO. NON-CPI: N1997-215841 [199724]
TITLE: Heat sensitive imaging element for lithographic printing plate production - comprises image forming layer of crosslinking agent for crosslinking polyvinyl alcohol hydrophilic binder on heating, for print endurance
DERWENT CLASS: A14; A89; G07; P74; P75; P84
INVENTOR: VAN D M; VAN DAMME M; VERMEERSCH J
PATENT ASSIGNEE: (GEVA-C) AGFA-GEVAERT; (GEVA-C) AGFA-GEVAERT NV
COUNTRY COUNT: 4

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 773112 <--	A1	19970514	(199724)*	EN	9[0]	
JP 09171250 <--	A	19970630	(199736)	JA	22[0]	
JP 2894550 <--	B2	19990524	(199926)	JA	7	
EP 773112 <--	B1	20010530	(200131)	EN		
DE 69613078 <--	E	20010705	(200146)	DE		
US 6391516 <--	B1	20020521	(200239)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 773112 A1		EP 1996-202950	19961022
US 6391516 B1	Provisional	US 1996-11003P	19960201
DE 69613078 E 19961022		DE 1996-69613078	
EP 773112 B1		EP 1996-202950	19961022
DE 69613078 E		EP 1996-202950	19961022
JP 09171250 A		JP 1996-311252	19961108
JP 2894550 B2		JP 1996-311252	19961108
US 6391516 B1		US 1996-751764	19961108

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69613078 E	Based on	EP 773112 A

JP 2894550 B2 Previous Publ JP 09171250 A

PRIORITY APPLN. INFO: EP 1995-203046 19951109
INT. PATENT CLASSIF.:
MAIN: B41M0005-36
IPC RECLASSIF.: B41C0001-055 [I,A]; B41C0001-055 [I,C]; B41C0001-10 [I,A]; B41C0001-10 [I,C]; B41M0005-36 [I,A]; B41M0005-36 [I,C]; B41N0001-12 [I,C]; B41N0001-14 [I,A]; G03F0007-00 [I,A]; G03F0007-00 [I,C]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-033 [I,A]; G03F0007-033 [I,C]; G03F0007-20 [I,A]; G03F0007-20 [I,C]; G03F0007-40 [I,A]; G03F0007-40 [I,C]
ECLA: B41C0001-10A2; B41M0005-36P
USCLASS NCLM: 430/270.100
NCLS: 430/302.000; 430/309.000; 430/330.000; 430/348.000; 430/927.000; 430/955.000; 430/964.000
JAP. PATENT CLASSIF.:
MAIN/SEC.: B41C0001-055 501; B41N0001-14; G03F0007-00 503; G03F0007-004 505; G03F0007-033; G03F0007-20 505; G03F0007-40 501
FTERM CLASSIF.: 2H025; 2H084; 2H096; 2H097; 2H114; 2H097/AA03; 2H114/AA04; 2H096/AA06; 2H025/AA12; 2H084/AA14; 2H114/AA14; 2H114/AA22; 2H084/AA30; 2H084/AA36; 2H025/AB03; 2H025/AC08; 2H025/AD03; 2H096/BA09; 2H114/BA10; 2H096/BA20; 2H084/BB01; 2H096/CA03; 2H097/CA17; 2H096/CA20; 2H025/CB41; 2H025/CB43; 2H025/CB45; 2H025/CB47; 2H025/CB53; 2H084/CC05; 2H025/CC08; 2H025/CC12; 2H025/CC13; 2H025/CC20; 2H114/DA03; 2H114/DA04; 2H114/DA05; 2H114/DA10; 2H114/DA12; 2H025/DA18; 2H025/DA36; 2H114/DA42; 2H114/DA48; 2H114/DA49; 2H114/DA51; 2H114/DA52; 2H114/DA53; 2H114/DA75; 2H096/EA04; 2H096/EA11; 2H097/FA03; 2H114/FA09; 2H025/FA10; 2H025/FA28; 2H025/FA29; 2H114/GA09; 2H114/GA22; 2H096/HA01; 2H096/HA02; 2H097/LA03

BASIC ABSTRACT:
EP 773112 A1 UPAB: 20060113 An imaging element comprises: (i) on a hydrophilic surface of a lithographic base an image forming layer comprising hydrophobic thermoplastic polymer particles dispersed in a hydrophilic binder; and
(ii) a compound capable of converting light to heat, the compound being in the image forming layer or a layer adjacent to it. The image forming layer further comprises a crosslinking agent capable of crosslinking the hydrophilic binder upon heating in a ratio of 1:100 - 200:1 by weight versus the hydrophilic binder. Also claimed is a method for manufacture of a lithographic printing plate.
USE - A heat-sensitive imaging element is provided for making a lithographic printing plate (claimed).
ADVANTAGE - The printing plates can be made in a convenient and environmentally friendly manner, and they have high printing endurance.

DOCUMENTATION ABSTRACT:
EP773112
An imaging element comprises:
(i) on a hydrophilic surface of a lithographic base an image forming layer comprising hydrophobic thermoplastic polymer particles dispersed in a hydrophilic binder; and

(ii) a compound capable of converting light to heat, the compound being in the image forming layer or a layer adjacent to it.

The image forming layer further comprises a crosslinking agent capable of crosslinking the hydrophilic binder upon heating in a ratio of 1:100 - 200:1 by weight versus the hydrophilic binder.

Also claimed is a method for manufacture of a lithographic printing plate.

USE

A heat-sensitive imaging element is provided for making a lithographic printing plate (claimed).

ADVANTAGE

The printing plates can be made in a convenient and environmentally friendly manner, and they have high printing endurance.

CLAIMED METHOD

The plate mfr. comprises:

(1) image-wise exposing an imaging element, as above, to light; and

(2) developing the obtained image-wise exposed imaging element with plain water or an aqueous liquid.

EXAMPLE

A 0.2 mm thick aluminium foil was degreased by immersing the foil in an aqueous solution containing 5 g/l of sodium hydroxide at 50°C. and rinsed with water. The foil was electrochemically grained using an alternating current in an aqueous solution containing 4 g/l of hydrochloric acid, 4 g/l of hydro-boric acid and 0.5 g/l of aluminium ions at 35°C., and a current density of 1200 A/m2 to form a surface topography with an average centreline roughness Ra of 0.5μm.

After rinsing with demineralised water the aluminium foil was etched with an aqueous solution containing 300 g/l of sulphuric acid at 60°C. for 180 seconds, and rinsed with water at 25°C. for 30 seconds.

The foil was anodically oxidised in an aqueous solution containing 200 g/l of sulphuric acid at 45°C., a voltage of 10 V and a current density of 150 A/m2 for 300 seconds to form an anodic oxidation film of 3 g/m2 Al2O3, then washed with demineralised water, post treated with a solution containing 20 g/l of sodium bicarbonate at 40°C. for 30 seconds, and rinsed with water at 20°C. for 120 seconds and dried.

The obtained lithographic base was submerged in an aqueous solution containing 5 weight% citric at 50°C. for 60 seconds, rinsed with water and dried at 40°C..

A coating composition was prepared by adding to 10.8 g. of a 20% dispersion of polymethylmethacrylate stabilised with 'Hostapal B' (RTM) in deionised water, 4.5 g. of a 15% dispersion of carbon black in water, 59.79 g. of water and 25 g. of a 2% solution of a 98% hydrolysed polyvinylacetate having average molecular weight of 200,000 g/mol in water and 2.5 g. of a 1% solution of hexamethoxymethyl amine in water.

An imaging element was prepared by coating the above coating onto the above formed lithographic base in an amount of 30 g/m2 and drying at 35°C..

A printing plate was made from the above formed imaging element. After printing 15000 copies no damage to the image areas was observed (only 6000 copies printed due to damage to the image areas). Results in brackets are for a printing plate without hexamethoxymethylmelamine crosslinker in the coating compsn..

(STC)

PREFERRED ELEMENT

Compound converting light to heat is infrared absorbing dye, carbon black, metal boride, metal carbide, metal nitride, metal carbonitride or a conductive polymer particle.

The lithographic base is an anodised aluminium or comprises a flexible support having a cross-linked hydrophilic layer.

The thermoplastic polymer particles have a coagulation temperature of above 50°C..

The hydrophilic binder is polyvinyl alcohol, poly(meth)acrylic acid, poly(meth)acrylamide, polyhydroxyethyl(meth)acrylate, polyvinyl methyl-ether, or polysaccharide.

The hydrophobic thermoplastic polymer particles are polystyrene, polyvinyl chloride, polymethyl methacrylate, polyvinylidene chloride, polyacrylonitrile, polyvinyl carbazole or copolymers and/or mixtures of these.

The hydrophilic binder comprises reactive groups and the crosslinking agent is capable of reacting with the reactive groups under the influence of heat.

The reactive group is a hydroxy, an amine or a carboxyl group.

The image forming layer further comprises a catalyst capable of catalysing the crosslinking or a precursor of the catalyst that can be converted to a catalyst upon heating.

PREFERRED METHOD

The image-wise exposure is a scanning exposure, pref. carried out by laser(s).

The image-wise exposed imaging element is heated subsequent to development, and may be pref. treated with gum prior to heating.

FILE SEGMENT: CPI; GMPI
MANUAL CODE: CPI: A08-C01; A08-M09C; A10-E09B2; A12-L02B1; A12-L05A; A12-W07B; G05-A01; G06-A06; G06-D05; G06-F03C; G06-F03D

L40 ANSWER 17 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1996-181096 [199619] WPIX
DOC. NO. CPI: C1996-057218 [199619]
TITLE: Dyeing regenerated cellulose fibres with acid or direct dyes - by treating cellulose solution, etc. with an amine-modified cellulose deriv, spinning by the viscose process and dyeing without electrolyte salt
DERWENT CLASS: A11; E19; F01; F06
INVENTOR: ELTZ A; ELTZ A V D; SCHRELL A; VON DER ELTZ A
PATENT ASSIGNEE: (FARH-C) HOECHST AG
COUNTRY COUNT: 16

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 705924	A2	19960410	(199619)*	DE	10[0]	
<--						
DE 4435385	A1	19960411	(199620)	DE	10[0]	
<--						
CA 2159782	A	19960405	(199629)	EN		
<--						
FI 9504683	A	19960405	(199636)	FI		
<--						
US 5542955	A	19960806	(199637)	EN	7[0]	
<--						
JP 08188972	A	19960723	(199639)	JA	9[0]	

<--

EP 705924 A3 19961023 (199648) EN

<--

CN 1129269 A 19960821 (199751) ZH

<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 705924 A2		EP 1995-114951	19950922
DE 4435385 A1		DE 1994-4435385	19941004
EP 705924 A3		EP 1995-114951	19950922
CN 1129269 A		CN 1995-117284	19950928
US 5542955 A		US 1995-538503	19950929
FI 9504683 A		FI 1995-4683	19951002
CA 2159782 A		CA 1995-2159782	19951003
JP 08188972 A		JP 1995-256492	19951003

PRIORITY APPLN. INFO: DE 1994-4435385 19941004

INT. PATENT CLASSIF.:

IPC RECLASSIF.: D01F0002-00 [I,C]; D01F0002-06 [I,A]; D01F0002-08 [I,A]; D01F0002-10 [I,A]; D06P0003-58 [I,C]; D06P0003-60 [I,A]; D06P0003-62 [I,A]; D06P0005-22 [I,A]; D06P0005-22 [I,C]; D06P0005-30 [I,A]; D06P0005-30 [I,C]

ECLA: D01F0002-06; D01F0002-10; D06P0003-60A; D06P0003-62; D06P0005-22B; D06P0005-30

JAP. PATENT CLASSIF.:

MAIN/SEC.: D01F0002-08; D06P0003-60 A; D06P0003-62; D06P0005-22 B

FTERM CLASSIF.: 4H057; 4L035; 4L042; 4H057/AA02; 4L035/AA04; 4L035/AA06; 4H057/BA02; 4H057/BA04; 4L035/BB03; 4L035/BB06; 4L035/BB15; 4L035/BB66; 4L035/BB69; 4L035/BB72; 4H057/CA03; 4H057/CB04; 4H057/CB05; 4H057/CB11; 4H057/CB18; 4H057/CC01; 4L035/CC20; 4H057/DA01; 4H057/DA24; 4H057/DA30; 4H057/DA34; 4L035/EE20; 4H057/GA06; 4H057/GA90; 4L035/GG06; 4H057/HA18

BASIC ABSTRACT:

EP 705924 A2 UPAB: 20050511 A process for dyeing regenerated cellulose fibres (I) comprises adding an amine-substd. cellulose derivative (II) to a viscose material or alkali cellulose, or to a cellulose solution, spinning fibres by the viscose process, converting the fibres into woven or knitted fabric and dyeing with direct or acid dye in the absence of added electrolyte salt.

USE - Used for dyeing regenerated cellulose fibre materials.

ADVANTAGE - Enables the dyeing of viscose materials with direct or acid dyes without the addition of electrolyte salts and without affecting the quality and properties of the fabric.

DOCUMENTATION ABSTRACT:

EP705924

A process for dyeing regenerated cellulose fibres (I) comprises adding an amine-substd. cellulose derivative (II) to a viscose material or alkali cellulose, or to a cellulose solution, spinning fibres by the viscose process, converting the fibres into woven or knitted fabric and dyeing with direct or acid dye in the absence of added electrolyte salt.

USE

Used for dyeing regenerated cellulose fibre materials.

ADVANTAGE

Enables the dyeing of viscose materials with direct or acid dyes without the addition of electrolyte salts and without affecting the quality and properties of the fabric.

EXAMPLE

436 pts. weight viscose solution with a cellulose content of 8.9%, an alkali content of 5% and a falling ball viscosity of 38 secs. at 30°C was mixed with 16.2 pts. weight of hydroxyethyl-cellulose modified with N-(2-sulphatoethyl)-piperazine (viscosity = 925 mPa.s; DP = 700). This premix was stirred into 2522 pts. weight of the above viscose solution, which was then spun by the standard process into a bath containing H2SO4, Na2SO4 and ZnSO4. The fibres obtd. were stretched in an acid bath, cut, washed, prepared, dried and woven. The fabric (20 pts. weight) was dyed for 30 mins. at 80°C in 200 pts. weight of an aqueous bath containing 2 weight % (w.rt. dry fabric) of a blue acid dyestuff (C.I. Direct Blue 108, C.I. Number 51320) and pre-adjusted to pH 4.5 with acetic acid. A strong blue colour was obtd. with fastness properties (especially wash fastness) far superior to those obtd. by conventional direct dyeing. (SV)

PREFERRED ADDITIVES

(II) may be polymers of unsatd. amines with cellulose, pref. polymers of components (A) and B) in a weight ratio of (A):(B) = (95-20):(5-80). Monomers (A) comprise (a) N-vinylimidazoles, opt. ring-substd. with up to 3 1-12C alkyl gps. and opt. in N-quaternised or salt form, (b) 5- to 8-membered N-vinyl-lactams, opt. ring-substd. as in (a), (c) (1-30C dialkylaminoalkyl) (meth)acrylates (opt. in quat. or salt form), (d) N-(1-30C dialkylaminoalkyl)- (meth)acrylamides (opt. quat. or salt), (e) diallyl-1(1-12C alkyl) amines or salts thereof or diallyl-di-(1-12C alkyl)- ammonium cpds., and opt. (f) mono-unsatd. 3-10C carboxylic acids or alkali, alkaline earth or ammonium salts thereof, (g) esters of the acids in (f), and/or (h) cpds. with at least two unconjugated double bonds.

Pref, (A) comprise either cpds. (a), (c), (d) or (e) alone, or mixts. of 5-95 weight % (b) and 95-5 weight % of one or more of the other cpds., with the amount of (h) not exceeding 5 wt % w.r.t the total amount of (A).

Monomers (B) comprise mono-, oligo- or poly-saccharides, thermally or mechanically treated, oxidatively, hydrolytically or enzymatically degraded polysaccharides, oxidised degraded polysaccharides, chemically modified mono-, oligo- or poly-saccharides, or mixture thereof.

Pref. polymers of this type are polymers of cellulose and (c) N,N-diallyl-N,N-di-(1-12C alkyl)-ammonium halides, pref. with one alkyl gp. = Me and the other = octyl, decyl or dodecyl, or with both alkyl = Me. Especially pref. monomer (c) is N,N-diallyl-N,N- dimethylammonium halide, pref. chloride.

Alternatively, (II) may be reaction prods. of cellulose with amines of formula (1a) or (1b):

Y = ester gp. pref. sulphato, phosphato, 1-4C alkanoyloxy or phenylsulphonyloxy (opt. ring-substd. with COOH, 1-4C alkyl, 1-4C alkoxy or nitro);

A+N+ one or two 1-4C alkylene gps. form the bivalent residue of a heterocyclic gp.;

A = O or a gp. of formula -NR-, -CHR- or -(NR1R2)+-Z;

R = H, amino, 1-6C alkyl (opt; substd. with 1 or 2 amino, sulpho, OH, sulphato, phosphato or COOH gps.) or 3-8C alkyl with 1 or

2 in-chain O r N gps. (opt. substd. as above);
Z = anion;
B = NH2, -NR1R3 or -(NR1R2R4)+-Z-;
R1, R2, R4 = H, Me or Et;
R3 =Me or Et;
alkylene = 2-6C alkylene (opt. substd. with 1 or 2 OH gps.) or 3-8C alkylene with 1 or 2 in-chain O or NH gps.;
alk = 2-6C alkylene, or 3-8C alkylene with 1 or 2 in-chain O or NH gps., pref. 2-6C alkylene (linear or branched in each case);
m = 1 or 2;
n = 1-4;
p = 1 or 2; the amino, OH and ester gps. may be attached to prim., sec., or tert. C atoms in the alkylene gp.

Pref. amine is e.g, N-(β-sulphatoethyl)-piperazine or -piperidine, or various substd. derivs. or salts thereof, 2(3)-sulphato-3(2)-hydroxy-1-aminopropane, a similar derivative of 2-aminopropane, or a derivative of these cpd. with a phosphato, 1-4C alkanoyloxy or phenylsulphonyloxy gp. (opt. ring-substd. as above) (12 unsubstd. amines listed). The amine may also contain a gp. which reacts with OH gps., pref. α-chloro-β-hydroxy or epoxide. The cellulose used for this type of derivative is e.g, carboxymethyl-, hydroxyethyl-, sulphoethyl-, hydroxyethylsulphoethyl-cellulose et. (10 modified celluloses listed). Derivative (II) has degree of polymerisation (DP) of 300-1000 anhydroglucose units and a viscosity of 300-1500 mPa.s.

PREFERRED PROCESS

Derivative (II) is added in a concentration of 1-20 (pref 1-12) weight %

w.r.t the cellulose content of the spinning material. The dye solution contains not more than 0.5 weight % electrolyte salt, and dyeing is performed by the ink jet process.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A03-A05A; A08-M01A; A10-E01; A11-A01; A11-C05A; A12-S05F; A12-S05H; A12-S05L; A12-S05N; E25; E25-E01; F02-A04; F02-B03; F03-C06; F03-F09; F03-F20; F03-F21

L40 ANSWER 18 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1996-049302 [199605] WPIX
DOC. NO. CPI: C1996-016022 [199605]
TITLE: New azlactone-functional membranes - formed by solvent phase inversion, used partic. for coupling biologically active molecules
DERWENT CLASS: A18; A25; A26; A96; B04; D16; J01
INVENTOR: DENNISON K A; LA LONDE M R; STEFELY J S
PATENT ASSIGNEE: (MINN-C) MINNESOTA MINING & MFG CO
COUNTRY COUNT: 61

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9532792 <--	A1	19951207	(199605)*	EN	50[2]	
AU 9524717 <--	A	19951221	(199612)	EN		
US 5510421 <--	A	19960423	(199622)	EN	15[2]	
EP 762928	A1	19970319	(199716)	EN	[0]	

```
          <--
JP 10501565      W  19980210 (199816)  JA  48[0]
          <--
EP 762928        B1 20031112 (200380)  EN
          <--
DE 69532119      E  20031218 (200407)  DE
          <--
JP 3626195       B2 20050302 (200518)  JA  27
```

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5510421 A		US 1994-249877	19940526
AU 9524717 A		AU 1995-24717	19950508
DE 69532119 E 19950508		DE 1995-69532119	
EP 762928 A1		EP 1995-919001	19950508
EP 762928 B1		EP 1995-919001	19950508
DE 69532119 E		EP 1995-919001	19950508
EP 762928 A1		WO 1995-US5630	19950508
JP 10501565 W		WO 1995-US5630	19950508
EP 762928 B1		WO 1995-US5630	19950508
DE 69532119 E		WO 1995-US5630	19950508
JP 3626195 B2		WO 1995-US5630	19950508
JP 10501565 W		JP 1996-500872	19950508
JP 3626195 B2		JP 1996-500872	19950508

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69532119 E	Based on	EP 762928 A
JP 3626195 B2	Previous Publ	JP 10501565 W
AU 9524717 A	Based on	WO 9532792 A
EP 762928 A1	Based on	WO 9532792 A
JP 10501565 W	Based on	WO 9532792 A
EP 762928 B1	Based on	WO 9532792 A
DE 69532119 E	Based on	WO 9532792 A
JP 3626195 B2	Based on	WO 9532792 A

PRIORITY APPLN. INFO: US 1994-249877 19940526
INT. PATENT CLASSIF.:
MAIN: B01D0067-00; C08L0101-06
IPC RECLASSIF.: B01D0071-00 [I,C]; B01D0071-44 [I,A]; B01D0071-62 [I,A]; B01D0071-82 [I,A]; B01J0020-30 [I,C]; B01J0020-32 [I,A]; B01J0039-00 [I,C]; B01J0039-20 [I,A]; C07K0001-00 [I,C]; C07K0001-22 [I,A]; C08F0026-00 [I,C]; C08F0026-06 [I,A]; C08J0005-18 [I,A]; C08J0005-18 [I,C]; C08L0001-00 [I,C]; C08L0001-12 [I,A]; C08L0101-00 [I,C]; C08L0101-06 [I,A]; C08L0027-00 [I,C]; C08L0027-16 [I,A]; C08L0033-00 [I,C]; C08L0033-04 [I,A]; C08L0039-00 [I,C]; C08L0039-04 [I,A]; C08L0071-00 [I,C];

C08L0071-02 [I,A]; C08L0081-00 [I,C]; C08L0081-06 [I,A]; C12N0011-00 [I,C]; C12N0011-08 [I,A]

ECLA: B01D0071-44; B01D0071-62; B01J0020-32; C07K0001-22

JAP. PATENT CLASSIF.:

MAIN/SEC.: B01D0071-82; B01J0039-20 Z; C08F0026-06; C08J0005-18; C08L0001-12; C08L0101-06; C08L0027-16; C08L0033-04; C08L0039-04; C08L0071-02; C08L0081-06; C12N0011-08 Z

FTERM CLASSIF.: 4B033; 4D006; 4F071; 4G067; 4J002; 4J100; 4F071/AA01; 4F071/AA04; 4F071/AA09; 4F071/AA14.X; 4F071/AA22.X; 4F071/AA26; 4F071/AA28.X; 4F071/AA30.X; 4F071/AA33.X; 4F071/AA33; 4F071/AA35.X; 4F071/AA37.X; 4F071/AA37; 4F071/AA51; 4F071/AA64; 4J002/AB02.2; 4J100/AB02.Q; 4F071/AC07.A; 4F071/AC12.A; 4F071/AC19.A; 4J100/AE02.Q; 4F071/AE19.A; 4F071/AE22.A; 4F071/AF04; 4J100/AF05.Q; 4J100/AF10.Q; 4F071/AF26; 4J100/AG04.Q; 4F071/AG05; 4F071/AG32; 4F071/AH02; 4F071/AH19; 4J100/AL03.Q; 4J100/AL08.Q; 4J100/AL09.Q; 4J100/AM19.Q; 4J100/AQ08.Q; 4J100/AQ15.P; 4F071/BA02; 4J100/BA03.Q; 4J100/BA05.Q; 4J100/BA08.Q; 4F071/BB02; 4F071/BB13; 4F071/BC01; 4F071/BC02; 4F071/BC17; 4J002/BD10.2; 4J002/BG04.2; 4J002/BG05.2; 4J002/BG06.2; 4J002/BJ00.1; 4J002/BJ00.2; 4J002/BN20.1; 4J100/CA01; 4J100/CA04; 4J100/CA31; 4J002/CH02.2; 4J002/CN03.2; 4J100/DA11; 4J100/DA37; 4J100/DA71; 4J002/FD14.0; 4D006/GA07; 4J002/GB04; 4J002/GD01; 4J002/GD02; 4J002/GD03; 4J002/GD05; 4J100/HA08; 4J100/HA53; 4J100/HC46; 4J100/HC47; 4J100/HC51; 4J100/HC59; 4J100/JA15; 4J100/JA17; 4J100/JA51; 4J100/JA53; 4D006/MA06; 4D006/MA22; 4D006/MA31; 4D006/MB09; 4D006/MC18; 4D006/MC21; 4D006/MC22; 4D006/MC24; 4D006/MC29; 4D006/MC32; 4D006/MC35; 4D006/MC37; 4D006/MC38; 4D006/MC45; 4D006/MC51; 4D006/MC62; 4D006/MC63; 4D006/MC71; 4B033/NA22; 4D006/NA40; 4B033/NA42; 4B033/NB04; 4B033/NB14; 4B033/NB34; 4B033/NB36; 4B033/NB37; 4B033/NB45; 4B033/NB63; 4B033/NC03; 4B033/ND03; 4D006/PB70

BASIC ABSTRACT:

WO 1995032792 A1 UPAB: 20050825 An azlactone-functional membrane comprises azlactone-functional membrane surfaces formed by solvent phase inversion. Also claimed is an adduct membrane comprising the reaction of an azlactone-functional membrane with a nucleophilic reagent.

USE - The membrane can be used in processes such as size separation or affinity separation processes. The azlactone-functional membranes are partic. useful for coupling biologically active substances such as proteins, peptides, antibodies, antigenic substances, enzymes, cofactors, inhibitors, lectins, hormones, receptors, coagulation factors, anticoagulants, amino acids, histones, vitamins, drugs or cell surface markers.

ADVANTAGE - The azlactone-functional membranes have good structural integrity and excellent porosity. The azlactone-functionality can be provided in the bulk of the membrane and not only at the surfaces of the membrane.

DOCUMENTATION ABSTRACT:

WO9532792

An azlactone-functional membrane comprises azlactone-functional membrane surfaces formed by solvent phase inversion.

Also claimed is an adduct membrane comprising the reaction of an azlactone-functional membrane with a nucleophilic reagent.

USE

The membrane can be used in processes such as size separation or affinity separation processes.

The azlactone-functional membranes are partic. useful for coupling biologically active substances such as proteins, peptides, antibodies, antigenic substances, enzymes, cofactors, inhibitors, lectins, hormones, receptors, coagulation factors, anticoagulants, amino acids, histones, vitamins, drugs or cell surface markers.

ADVANTAGE

The azlactone-functional membranes have good structural integrity and excellent porosity.

The azlactone-functionality can be provided in the bulk of the membrane and not only at the surfaces of the membrane.

EXAMPLE

75 pts.weight dimethylacetamide (DMAc), 50 pts.wt of a mixture of 65/30/5 of (I)/butyl acrylate/N,N-dimethylacrylamide and 0.15 pts. weight AIBN were reacted under N2 at 60 ° C for 48 hrs.. The polymer was made up to 40% solids in DMAc and diluted to 20% solids with MEK/DMAc (4:1).

The solution was coated onto a glass plate, evaporated for 15 secs, plunged into a coagulating watter bath containing ultrapure water at 24 ° C and allowed to soak for 10-30 mins.. The resulting membrane was removed from the bath, placed in a glove bag under N2, dried for at least 2 hrs. and stored in a desiccator.

The membrane had uniform pores of 2-5 μ diameter and good porosity. The protein binding capacity was 1.1 μg/cm2 (Protein A). (CD)

PREFERRED MEMBRANES

The membranes can be formed from an azlactone-functional polymer such as a homopolymer or copolymer of 2-ethenyl-4,4'-dimethyl-1,3-oxazolin-5-one (I).

The comonomer is methyl methacrylate, hydroxyethyl methacrylate, butyl acrylate, dimethyl acrylamide, N-vinyl pyrrolidone, a monomethyl polyethylene glycol acrylate, vinyl acetate, a vinyl aromatic monomer, an α, β-unsaturated carboxylic acid (or deriv, or vinyl ester)), a vinyl alkyl ether, an olefin, a N-vinyl cpd. a vinyl aldehyde or styrene. The polymers can be blended with other polymers, e.g. a poly(N-vinyl lactam), a polysulphone , a polyethersulphone, cellulose acetate, a polyalkylene oxide, a polyacrylate, a polymethacrylate and/or polyvinylidene fluoride.

The azlactone functional polymer is hydrophilised by sacrifice of azlactone moieties.

The membrane is cast on a support and is prepared from monomers polymerised in a solvent usable in the casting solution

The monomers comprise an azlactone-functional monomer and a co-monomer comprising a plasticising co-monomer and/or a hydrophilic co-monomer.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A10-E01; A12-W11A; A12-W11L; B04-C03B; B11-B; D05-H13; J01-C03

L40 ANSWER 19 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1993-001116 [199301] WPIX
DOC. NO. CPI: C1993-000438 [199321]
DOC. NO. NON-CPI: N1993-000702 [199321]
TITLE: Positive working radiation-sensitive mixture especially for

relief copies production - contain di:sulphone cpd. as acid precursor to increase solubility of binder in aqueous alkaline developer

DERWENT CLASS: A89; E19; G06; P84
INVENTOR: BINDER H; FUNHOFF A; FUNHOFF D; ROSER J; SCHWALM R
PATENT ASSIGNEE: (BADI-C) BASF AG
COUNTRY COUNT: 5

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 520265 <--	A2	19921230	(199301)*	DE	8[0]	
DE 4121199 <--	A1	19930107	(199302)	DE	7[0]	
JP 05197154 <--	A	19930806	(199336)	JA	8	
EP 520265 <--	A3	19930922	(199509)	EN		
EP 520265 <--	B1	19991117	(199953)	DE		
DE 59209768 <--	G	19991223	(200006)	DE		
JP 3135361 <--	B2	20010213	(200111)	JA	8	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 520265 A2		EP 1992-109980	19920613
DE 4121199 A1		DE 1991-4121199	19910627
JP 05197154 A		JP 1992-150435	19920610
JP 3135361 B2		JP 1992-150435	19920610
DE 59209768 G 19920613		DE 1992-59209768	
EP 520265 A3		EP 1992-109980	19920613
EP 520265 B1		EP 1992-109980	19920613
DE 59209768 G		EP 1992-109980	19920613

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 59209768 G	Based on	EP 520265 A
JP 3135361 B2	Previous Publ	JP 05197154 A

PRIORITY APPLN. INFO: DE 1991-4121199 19910627
INT. PATENT CLASSIF.:
IPC RECLASSIF.: G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-029 [I,A]; G03F0007-029 [I,C]; G03F0007-033 [I,A]; G03F0007-033 [I,C]; G03F0007-039 [I,A]; G03F0007-039 [I,C]; G03F0007-38 [I,A]; G03F0007-38 [I,C]; H01L0021-02 [I,C]; H01L0021-027 [I,A]
ECLA: G03F0007-039
JAP. PATENT CLASSIF.:
MAIN/SEC.: G03F0007-004 503; G03F0007-004 503 A; G03F0007-029; G03F0007-033; G03F0007-039 501; G03F0007-039 601; G03F0007-38 511; H01L0021-30 502 R

FTERM CLASSIF.: 2H025; 2H096; 5F046; 2H025/AA01; 2H025/AB16; 2H025/AC01; 2H025/AC04; 2H025/AC05; 2H025/AC06; 2H025/AD03; 2H096/BA09; 2H096/CA14; 2H025/CA30; 2H025/CB14; 2H025/CB16; 2H025/CB41; 2H025/CB52; 2H096/DA01; 2H096/EA02; 2H096/EA05; 2H096/EA06; 2H096/EA07; 2H096/FA01; 2H025/FA17; 2H096/GA09

BASIC ABSTRACT:

EP 520265 A2 UPAB: 20050823 Positive-working radiation-sensitive mixts. contain (a1) an organic binder (I) containing acid-labile ether, ester or carbonate gps., which is insoluble in water and becomes soluble in aqueous alkaline developer solution (II) on reaction with acid, or (a2) a polymeric binder (III), which is insoluble in water and soluble in (II), together with (a2.1) an organic cpd. (IVA) which becomes more soluble in (II) on reaction with acid and/or (a2.2) an organic cpd. (IVB) which becomes more soluble in (II) on reaction with an acid and contains acid-labile gps. and also a gp. forming a strong acid on irradiation, and (b) an organic cpd. forming a strong acid on irradiation. The novelty is that (b) is a disulphone R1-SO2-SO2-R2 (V) (where R1 and R2 are independently (cyclo)alkyl, aralkyl or (hetero)aryl with up to 12C, opt. with one or more alkyl(thio), alkoxy(carbonyl), halo, NO2, alkanoyl, arylthio, alkylsulphoxy, alkylsulphonyl, aryloxy, arylsulphoxy and/or arylsulphonyl substits., each with up to 6C.

USE/ADVANTAGE - The mixts. are claimed for use in production of relief copies. They are sensitive to UV, including deep UV, electronic and X-radiation, give high resolution and very high contrast and have improved processing latitude, especially with tolerable storage times of over 15 min. between exposure and baking. They are especially useful as resist materials and are very suitable for deep UV lithography. (Reprinted in week 9334).

FILE SEGMENT: CPI; GMPI

MANUAL CODE: CPI: A08-M08; A12-L02E; E10-A04A; G06-D01; G06-D03; G06-D04; G06-F03C; G06-F03D

L40 ANSWER 20 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN

ACCESSION NUMBER: 1991-304854 [199142] WPIX

DOC. NO. CPI: C1991-131992 [199216]

TITLE: Modified polyphenylene ether(s) compatible with resins - prepared by reacting polyphenylene ether* containing carbon- double bond with functionalising agents, e.g. borane and mercaptan cpds.

DERWENT CLASS: A25

INVENTOR: ARITOMI M; TSUKAHARA T

PATENT ASSIGNEE: (MITP-C) MITSUBISHI PETROCHEMICAL CO LTD

COUNTRY COUNT: 7

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 451819 <--	A	19911016	(199142)*	EN	29	[9]
JP 03292325 <--	A	19911224	(199206)	JA		
JP 04020524 <--	A	19920124	(199210)	JA		
JP 04033909 <--	A	19920205	(199212)	JA	5	[8]
JP 04072328 <--	A	19920306	(199216)	JA	7	
JP 04103629 <--	A	19920406	(199220)	JA	6	

```
      JP 04117423      A  19920417 (199222)  JA  7
           <--
      US 5120800       A  19920609 (199226)  EN  20[8]
           <--
      US 5332801       A  19940726 (199429)  EN  20[9]
           <--
      EP 451819        A3 19931103 (199511)  EN
           <--

APPLICATION DETAILS:

      PATENT NO      KIND                  APPLICATION    DATE
      ----------------------------------------------------------------------
      EP 451819 A                          EP 1991-105697 19910410
      JP 03292325 A                        JP 1990-92997 19900410
      JP 04020524 A                        JP 1990-124040 19900516
      JP 04033909 A                        JP 1990-138593 19900530
      JP 04072328 A                        JP 1990-181672 19900711
      JP 04103629 A                        JP 1990-219987 19900823
      JP 04117423 A                        JP 1990-234591 19900906
      US 5120800 A                         US 1991-681057 19910405
      US 5332801 A Cont of                 US 1991-681057 19910405
      EP 451819 A3                         EP 1991-105697 19910410
      US 5332801 A Div Ex                  US 1992-841412 19920226
      US 5332801 A                         US 1993-16090 19930210

FILING DETAILS:

      PATENT NO       KIND                  PATENT NO
      ------------------------------------------------
      US 5332801 A          Cont of         US 5120800 A

PRIORITY APPLN. INFO: JP 1990-234591       19900906
                      JP 1990-92997        19900410
                      JP 1990-124040       19900516
                      JP 1990-138593       19900530
                      JP 1990-181672       19900711
                      JP 1990-219987       19900823
INT. PATENT CLASSIF.:
 IPC RECLASSIF.:      C08F0283-00 [I,C]; C08F0283-06 [I,A]; C08F0283-08
                      [I,A]; C08G0065-00 [I,C]; C08G0065-00 [I,C];
                      C08G0065-48 [I,A]; C08G0065-48 [I,A]
ECLA:                 C08G0065-48B
USCLASS NCLM:         525/390.000
        NCLS:         525/390.000; 525/393.000; 525/905.000; 528/212.000;
                      528/218.000
JAP. PATENT CLASSIF.:
      MAIN/SEC.:      C08F0283-06; C08F0283-08 MQU; C08G0065-48;
                      C08G0065-48 NQU
FTERM CLASSIF.:       4J005; 4J026; 4J005/AA26; 4J026/AB22; 4J026/AC22;
                      4J026/AC25; 4J026/BA25; 4J026/BA30; 4J026/BA34;
                      4J026/BA35; 4J026/BA36; 4J026/BB01; 4J005/BD01;
                      4J005/BD04; 4J005/BD05; 4J005/BD06; 4J005/BD08;
                      4J026/DB02; 4J026/DB05; 4J026/DB09; 4J026/DB12;
                      4J026/DB15; 4J026/DB31; 4J026/DB32; 4J026/GA08
BASIC ABSTRACT:
      EP 451819 A   UPAB: 20050502 Modified polyphenylene ether (PPE) (I) is
      prepared by reacting a (PPE) (II) having a carbon-carbon double bond in a
      constituent, with specified cpds. to introduce gps. selected from the
      following: (i) borane, (ii) prim. alcoholic hydroxyl, (iii) alpha-beta unsatd.
```

carbonyl, (iv) hydroxyl, (v) carbonyl, or (vi) alkoxysilyl. Also claimed are resin compsns. containing 5-90 weight% of the prod. of any of the processes (ii) to (v), 0-80 weight% non- modified PPE and 10-90 weight% alpha-beta unsatd. carboxylic acid modified olefin resin; and a resin compsn. containing 5-90 weight% of the prod. of process (vi), 0-80 weight% non-modified PPE and 10-90 weight% of alcoholic hydroxyl-modified olefin resin. USE/ADVANTAGE - Used in moulding processes, opt. in blends with other resins; blends more compatible than those in which unmodified PPE is used. The number of modifying gps. is controllable, whereas the lack of control in prior art methods, e.g. in those using compatibilising agents, reduces the efficiency of agents.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A05-H07; A07-A04E; A10-E01

L40 ANSWER 21 OF 21 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1989-008830 [198902] WPIX
DOC. NO. CPI: C1989-004084 [199321]
TITLE: Modified chlorinated polypropylene binder resin - obtd. by reacting chlorinated polypropylene with polyurethane, provides coating compsns. with excellent adhesion to plastics
DERWENT CLASS: A17; A32; A82; G02
INVENTOR: FUJIWARA K; INOUE T; KANO H; KANO M; MIYAMOTO T; MIYAMOTO Y
PATENT ASSIGNEE: (SAKA-N) SAKATA INKS CO LTD
COUNTRY COUNT: 5

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
EP 297555 <--	A	19890104	(198902)*	EN	27	
JP 01085226 <--	A	19890330	(198919)	JA		
JP 01085227 <--	A	19890330	(198919)	JA		
JP 01252606 <--	A	19891009	(198946)	JA		
JP 01292020 <--	A	19891124	(199002)	JA		
EP 297555 <--	B1	19940126	(199404)	EN	29[0]	
DE 3887392 <--	G	19940310	(199411)	DE		
ES 2061565 <--	T3	19941216	(199505)	ES		
US 5430093 <--	A	19950704	(199532)	EN	14[0]	
JP 07119254 <--	B2	19951220	(199604)	JA	9[0]	
JP 2516660 <--	B2	19960724	(199634)	JA	11	
JP 2528497 <--	B2	19960828	(199639)	JA	10[0]	
JP 2528498 <--	B2	19960828	(199639)	JA	9[0]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE

EP 297555 A	EP 1988-110397 19880629
JP 01085227 A	JP 1987-161814 19870629
JP 01085226 A	JP 1987-161814 19870629
JP 01252606 A	JP 1987-161814 19870629
JP 01292020 A	JP 1987-161814 19870629
JP 01085227 A	JP 1987-323558 19871221
JP 01085226 A	JP 1987-323558 19871221
JP 01252606 A	JP 1987-323558 19871221
JP 01292020 A	JP 1987-323558 19871221
JP 01085226 A	JP 1988-89361 19880412
JP 2528497 B2	JP 1988-89361 19880412
JP 01085227 A	JP 1988-89362 19880412
JP 2528498 B2	JP 1988-89362 19880412
JP 01085227 A	JP 1988-89363 19880412
JP 01085226 A	JP 1988-89363 19880412
JP 01252606 A	JP 1988-89363 19880412
JP 01292020 A	JP 1988-89363 19880412
JP 07119254 B2	JP 1988-89363 19880412
JP 01085227 A	JP 1988-123056 19880520
JP 01085226 A	JP 1988-123056 19880520
JP 01252606 A	JP 1988-123056 19880520
JP 01292020 A	JP 1988-123056 19880520
JP 2516660 B2	JP 1988-123056 19880520
US 5430093 A Div Ex	US 1988-212652 19880628
DE 3887392 G	DE 1988-3887392 19880629
EP 297555 B1	EP 1988-110397 19880629
DE 3887392 G	EP 1988-110397 19880629
ES 2061565 T3	EP 1988-110397 19880629
US 5430093 A Cont of	US 1991-762723 19910916
US 5430093 A	US 1992-958780 19921009

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 3887392 G	Based on	EP 297555 A
ES 2061565 T3	Based on	EP 297555 A
JP 2528497 B2	Previous Publ	JP 01085226 A
JP 2528498 B2	Previous Publ	JP 01085227 A
JP 07119254 B2	Based on	JP 01252606 A
JP 2516660 B2	Previous Publ	JP 01292020 A

PRIORITY APPLN. INFO: JP 1988-123056 19880520
JP 1987-161813 19870629
JP 1987-161814 19870629
JP 1987-323558 19871221
JP 1988-89361 19880412
JP 1988-89362 19880412
JP 1988-89363 19880412

INT. PATENT CLASSIF.:

MAIN:	C08F0008-00; C08G0081-02
SECONDARY:	C09D0123-28
IPC RECLASSIF.:	C08F0008-00 [I,A]; C08F0008-00 [I,A]; C08F0008-00 [I,C]; C08F0008-00 [I,C]; C08G0018-00 [I,C]; C08G0018-00 [I,C]; C08G0018-62 [I,A]; C08G0018-62 [I,A]; C08G0018-63 [I,A]; C08G0081-00 [I,A]; C08G0081-00 [I,C]; C08G0081-00 [I,C]; C08G0081-00 [I,C]; C08G0081-02 [I,A]; C08G0081-02 [I,A]; C08G0081-02 [I,A]; C09D0011-10 [I,A]; C09D0011-10

[I,A]; C09D0011-10 [I,C]; C09D0011-10 [I,C];
C09D0175-04 [I,A]; C09D0175-04 [I,C]; C09D0187-00
[I,A]; C09D0187-00 [I,C]; C09J0123-00 [I,C];
C09J0123-28 [I,A]; C09J0159-00 [I,A]; C09J0159-00
[I,C]; C09J0175-00 [I,A]; C09J0175-00 [I,C];
C09J0175-04 [I,A]; C09J0175-04 [I,C]; C09J0187-00
[I,A]; C09J0187-00 [I,C]

ECLA: C08G0081-02F; C09D0011-10; C09J0123-28

JAP. PATENT CLASSIF.:

MAIN/SEC.: C08F0008-00; C08F0008-00 MFV; C08F0008-00 MJA;
C08G0018-62; C08G0018-62 NEN; C08G0018-63;
C08G0018-63 NEP; C08G0018-63 Z; C08G0081-00 NUV;
C08G0081-02; C08G0081-02 NUV; C09D0011-10;
C09D0011-10 102; C09D0011-10 PTK; C09D0011-10 PTL;
C09D0011-10 PTL A; C09D0011-10 PTM; C09D0011-10 PTU;
C09D0175-04; C09D0175-04 PHR; C09D0187-00;
C09D0187-00 PMX; C09D0003-49 PMX; C09D0003-72 PHR;
C09J0159-00; C09J0175-00; C09J0175-04 JFC;
C09J0187-00 JGJ; C09J0003-16 JFC; C09J0003-16 JGJ

FTERM CLASSIF.: 4J017; 4J031; 4J034; 4J038; 4J039; 4J040; 4J100;
4J100/AA03.P; 4J017/AA04; 4J031/AA12; 4J031/AA14;
4J031/AA15; 4J031/AA20; 4J031/AA24; 4J031/AA29;
4J031/AA46; 4J031/AA49; 4J031/AA56; 4J031/AB01;
4J017/AB10; 4J017/AB14; 4J017/AB19; 4J031/AC01;
4J031/AC03; 4J017/AC05; 4J031/AC07; 4J031/AC08;
4J031/AC09; 4J031/AD01; 4J039/AD01; 4J031/AD03;
4J031/AE01; 4J039/AE04; 4J039/AF02; 4J031/AF05;
4J039/AF05; 4J031/AF10; 4J031/AF12; 4J031/AF13;
4J031/AF19; 4J031/AF30; 4J100/BA03.H; 4J034/BA05;
4J100/BA15.H; 4J100/BA28.H; 4J100/BA38.H;
4J100/BA39.H; 4J100/BB01.H; 4J100/BC54.H; 4J100/CA01;
4J034/CA04; 4J034/CA15; 4J100/CA29; 4J100/CA31;
4J034/CB03; 4J034/CB07; 4J038/CB08.1; 4J038/CB09.1;
4J038/CB14.1; 4J038/CB17.1; 4J038/CB17.2; 4J034/CC01;
4J034/CC11; 4J038/CP11.1; 4J038/CQ00.1; 4J034/DA01;
4J100/DA01; 4J040/DA18.1; 4J040/DA18.2; 4J100/DA28;
4J034/DB01; 4J034/DB03; 4J034/DB04; 4J034/DB07;
4J034/DF01; 4J034/DF02; 4J034/DF12; 4J034/DF14;
4J038/DG00.1; 4J038/DG00.2; 4J034/DG02; 4J038/DG05.1;
4J038/DG05.2; 4J038/DG06.1; 4J038/DG06.2;
4J038/DG07.1; 4J038/DG07.2; 4J038/DG11.1;
4J038/DG11.2; 4J038/DG12.1; 4J038/DG12.2;
4J038/DG13.1; 4J038/DG13.2; 4J034/DG14; 4J038/DG19.1;
4J038/DG19.2; 4J038/DG22.1; 4J038/DG22.2;
4J038/DG26.1; 4J038/DG26.2; 4J038/DG27.1;
4J038/DG27.2; 4J038/DG28.1; 4J038/DG28.2;
4J038/DG32.1; 4J034/DP14; 4J039/EA43; 4J039/EA44;
4J040/EF18.1; 4J040/EF26.1; 4J040/EF27.1;
4J040/EF35.1; 4J039/FA02; 4J040/GA03; 4J040/GA05;
4J034/GA06; 4J040/GA07; 4J038/GA12; 4J040/GA14;
4J034/GA33; 4J034/HA01; 4J034/HA07; 4J100/HA21;
4J100/HA25; 4J100/HA55; 4J100/HA61; 4J034/HC01;
4J034/HC11; 4J100/HC27; 4J100/HC39; 4J100/HC43;
4J100/HC51; 4J100/HC61; 4J100/HG18; 4J100/JA01;
4J034/JA02; 4J100/JA03; 4J100/JA07; 4J034/JA14;
4J034/JA42; 4J040/LA01; 4J038/LA06; 4J040/LA06;
4J040/MA10; 4J038/MA14; 4J038/NA12; 4J040/NA16;
4J038/NA26; 4J038/PA15; 4J038/PA18; 4J038/PB03;
4J038/PB04; 4J038/PB07; 4J038/PC08; 4J038/PC09;
4J034/QA05; 4J034/QB10; 4J034/QB14; 4J034/QB17;

4J034/QB19; 4J034/RA07; 4J034/RA08

BASIC ABSTRACT:
EP 297555 A UPAB: 20050630 Modified chlorinated polypropylene is claimed comprising (I) chlorinated polypropylene, mol.weight 5000-500000; and (II) polyurethane, mol.weight 600-200000, combined through -A-X- bond in formula (II), (where A= residue of monomer/oligomer/polymer with radical-reactive unsatd. double bond; X=bonding gp. selected from -O-C(=O)-NH-, -C(=O)-O-, -C(=O)-NH-, -CH2-O-C(=O)- and -CH2-NH-.
Also claimed is its production by reacting 5-75 weight% (I) containing functional gp(s) with 95-25 weight% (II) containing functional gp(s).
USE - Principal binder resin in printing ink/adhesive/paint compsns. for plastic film/sheet or synthetic resin moulded prod. shows high adhesion under various processes.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A05-G01D; A10-E01; A10-E04A; G02-A02D; G02-A02H; G02-A04A; G03-B02D3; G03-B02E4

=> D L53 1-7 IFULL

L53 ANSWER 1 OF 7 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2004-214330 [200420] WPIX
TITLE: Novel biodegradable, biocompatible polyacetal derivative, useful for preparing polyacetal-protein conjugates for treating inflammation, obesity
DERWENT CLASS: A25; A96; B04; D16
INVENTOR: KINSTLER O B; LADD D L; PAPISOV M I
PATENT ASSIGNEE: (GEHO-C) GEN HOSPITAL CORP; (KINS-I) KINSTLER O B; (LADD-I) LADD D L; (MASS-N) MASSACHUSETTS GEN HOSPITAL; (PAPI-I) PAPISOV M I; (AMGE-C) AMGEN INC
COUNTRY COUNT: 100

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2004009774	A2	20040129	(200420)*	EN	50[2]	
US 20040105840	A1	20040603	(200436)	EN		
AU 2003256613	A1	20040209	(200450)	EN		
AU 2003256613	A8	20040209	(200562)	EN		
US 7160924	B2	20070109	(200705)	EN		
US 20080019940	A1	20080124	(200810)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004009774	A2	WO 2003-US22538	20030718
US 20040105840	A1 Provisional	US 2002-397509P	20020719
US 7160924	B2 Provisional	US 2002-397509P	20020719
AU 2003256613	A1	AU 2003-256613	20030718
AU 2003256613	A8	AU 2003-256613	20030718
US 20040105840	A1	US 2003-622998	20030718
US 7160924	B2	US 2003-622998	20030718
US 20080019940	A1 Provisional	US 2002-397509P	20020719
US 20080019940	A1 CIP of	US 2003-622998	20030718
US 20080019940	A1	US 2007-651437	20070109

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
AU 2003256613	A1	Based on	WO 2004009774	A
AU 2003256613	A8	Based on	WO 2004009774	A
US 20080019940	A1	CIP of	US 7160924	B

PRIORITY APPLN. INFO: US 2002-397509P 20020719
US 2003-622998 20030718
US 2007-651437 20070109

INT. PATENT CLASSIF.:
IPC ORIGINAL: A61K0038-00 [I,A]; A61K0038-17 [I,A]; A61K0038-20 [I,A]; A61K0038-20 [I,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; A61P0029-00 [I,A]; A61P0029-00 [I,C]; C08L0005-00 [I,C]; C08L0005-02 [I,A]
IPC RECLASSIF.: A61K0038-00 [N,A]; A61K0038-00 [N,C]; A61K0047-48 [I,A]; A61K0047-48 [I,C]; C07K0014-435 [I,C]; C07K0014-54 [I,A]; C07K0014-575 [I,A]; C08L0059-00 [I,A]; C08L0059-00 [I,C]; C12N0009-64 [I,A]; C12N0009-64 [I,C]
ECLA: A61K0047-48K6; A61K0047-48R; C07K0014-54; C07K0014-575P; C08L0059-00; C12N0009-64F2C
ICO: K61K0038:00
USCLASS NCLM: 424/078.370; 424/085.200; 514/693.000
NCLS: 424/078.050; 514/696.000; 514/886.000; 514/909.000; 525/054.100; 525/401.000; 525/403.000; 525/405.000; 525/461.000; 527/205.000; 528/245.000

BASIC ABSTRACT:
WO 2004009774 A2 UPAB: 20060121
NOVELTY - An biodegradable, biocompatible polyacetal derivative (I) having specified structural formula, is new.
DETAILED DESCRIPTION - An biodegradable, biocompatible polyacetal derivative (I) having structural formula (1) or (2). INDEPENDENT CLAIMS are also included for the following: (1) a polyacetal-protein conjugate (II), where the polyacetal is the derivative of (I);
(2) a composition (III) comprising any one of (II), and optionally a carrier; and
(3) preparing (II), involves preparing (I), conjugating (I) to a protein to a obtain (II), and isolating (II). ACTIVITY - Anorectic; Antidiabetic; Antiinflammatory. In vivo efficacy of the polyacetal-leptin conjugate (II) reduced obesity was tested in wild-type mice by monitoring weight loss relative to a buffer control was as follows: The polyacetal-leptin preparation at 10 mg/kg/single dose, 1 mg/kg/daily for 7 days, and 10 mg/kg/daily for 7 days in comparison with Fc-leptin preparation (10 mg/kg/single dose), were subcutaneously injected to the wild-type mice. The weight of the mice was noted after 7 days. The results showed that Fc-leptin preparation induced less weight loss in comparison with polyacetal-leptin preparation which induced 14 % weight loss in mice by day 7 when administered at 10 mg/kg/daily for 7 days.
MECHANISM OF ACTION - None given.
USE - (II) is useful for treating obesity and inflammation, which involves administering an effective amount of a polyacetal-leptin conjugate, or polyacetal-IL-lra conjugate, respectively to a patient in need of treatment (claimed). (I) is useful for preparing (II) which is useful in treating or preventing diabetes, blood lipid reduction and its related conditions, and increasing lean body mass and insulin sensitivity. (II) or (III) is useful for preparing medicaments for the above conditions.
ADVANTAGE - (I) enables preparation of polyacetal-protein conjugates which exhibits bioavailiability and biocompatibility compared to unconjugated proteins, without any undesirable side effects.
DESCRIPTION OF DRAWINGS - The drawing shows the graph depicting single dose induced weight loss percentage for various leptin preparations in a model such as

mice. TECHNOLOGY FOCUS:

BIOTECHNOLOGY - Preferred Conjugate: In (II), the protein is chosen from antibody, etanercept, insulin, gastrin, prolactin, adrenocorticotropic hormone (ACTH), thyroid stimulating hormone (TSH), luteinizing hormone (LH), follicle stimulating hormone (FSH), human chorionic gonadotropin (HCG), motilin, alpha interferon, beta interferon, gamma interferon, tumor necrosis factor (TNF), tumor necrosis factor-binding protein (TNF-bp), brain derived neurotrophic factor (BDNF), glial derived neurotrophic factor (GDNF), neurotrophic factor 3 (NT3), fibroblast growth factors (FGF), neurotrophic growth factor (NGF), bone growth factors such as osteoprotegerin (OPG), insulin-like growth factors (IGFs), macrophage colony stimulating factor (M-CSF), granulocyte macrophage colony stimulating factor (GM-CSF), megakaryocyte derived growth factor (MGDF), keratinocyte growth factor (KGF), thrombopoietin, platelet-derived growth factor (PGDF), colony simulating growth factors (CSFs), bone morphogenetic protein (BMP), superoxide dismutase (SOD), tissue plasminogen activator (TPA), urokinase, streptokinase, kallikrein, flt3 ligand, CD40 ligand, thrombopoeitin, calcitonin, Fas ligand, ligand for receptor activator of NF-kappa B (RANKL), TNF-related apoptosis-inducing ligand (TRAIL), thymic stroma-derived lymphopoietin, mast cell growth factor, stem cell growth factor, epidermal growth factor, RANTES, growth hormone, insulinotropin, parathyroid hormone, glucagon, interleukins 1 through 18 colony stimulating factors, lymphotoxin-beta, leukemia inhibitory factor, oncostatin-M, an Eph receptor, and Ephrin ligands.

EXTENSION ABSTRACT:

WIDER DISCLOSURE - The method for preparing (I) is also disclosed. ADMINISTRATION - (II) is administered orally, intramuscularly, subcutaneously, transdermally, viscerally, intravenously, intraperitoneally, intraarterially, intracerbralventricularly, or intrathecally, The dosage ranges from 0.1 microg-10 mg/kg/day. EXAMPLE - Synthesis of various biodegradable, biocompatible polyacetal derivatives, such as poly-(hydroxymethylene hydroxymethylformal) (PHF) maleimide was as follows: PHF was prepared through exhaustive lateral cleavage of dextran B-512 by periodate oxidation. Dextran of manganese 20000 Da (15g), was dissolved in 30 ml of deionized water. Dextran solution was treated with 50 g of sodium metaperiodate which was dissolved in 1 l of deionized water on ice bath in a light protected reactor. The reaction mixture was incubated at 5 degreesC for 3 hours, and then at 25 degreesC for 10 hours. The reaction mixture was then filtered, desalted by flow dialysis, and treated with sodium borohydride (8 g) which was dissolved in 50 ml of deionized water at 0 degreesC. After a 2 hour incubation, the pH was adjusted to 6.5 with 5 N hydrochloric acid. The product was desalted and concentrated by flow dialysis using hollow fiber cartridge, and purified by gel chromatography on Sephadex G-25, using deionized water as an eluent. The polymer was recovered from the aqueous solutions by lyophilization. Dry polymer 10 g, and maleimidopropionic acid, 0.5 g, were dissolved in 100 ml pyridine. The reaction mixture was placed under argon. Then, 0.67 g of N,N'-dicyclohexyl carbodiimide and 0.1 g of dimethylaminopyridine were added, and the reaction mixture was incubated for 12 hours at 25 degreesC, filtered and dried in vacuum, then, the product was reconstituted in 100 ml cold deionized water, desalted on Sephadex G-25, and then 1 g sodium chloride was added to the polymer solution, and the solution was lyophilized.

FILE SEGMENT: CPI

MANUAL CODE: CPI: A10-E01; A10-E07C; A10-E23; A12-V01; B04-C03C; B04-G01; B04-H02; B04-H04; B04-H05; B04-H06; B04-H08; B04-H09; B04-H13; B04-H15; B04-H16; B04-J03; B04-J04; B04-J05; B04-J12; B04-K01; B04-L02; B04-L03; B04-L05C; B14-C03; B14-E12; B14-F06; B14-S04; D05-H10; D05-H17C

L53 ANSWER 2 OF 7 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2003-373121 [200336] WPIX
DOC. NO. CPI: C2003-099308 [200336]
TITLE: Production of modified hydroxy-polymer for use in immobilisation of proteins comprises reacting a solution of hydroxy-polymer in polar aprotic solvent with carboxylic acid, azide reagent and organic base
DERWENT CLASS: A14; A89; B04; D16
INVENTOR: BOBROVINK T; OVODOV S; PRISYAZHNOY V
PATENT ASSIGNEE: (BIOG-N) BIOGENES GMBH
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
DE 10114134 <--	A1	20021128	(200336)*	DE	12[5]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 10114134 A1		DE 2001-10114134	20010319

PRIORITY APPLN. INFO: DE 2001-10114134 20010319
INT. PATENT CLASSIF.:
IPC RECLASSIF.: A61K0047-48 [I,A]; A61K0047-48 [I,C]; C08B0037-00 [I,C]; C08B0037-02 [I,A]; C08G0065-00 [I,C]; C08G0065-329 [I,A]; C08G0065-333 [I,A]
ECLA: A61K0047-48K6; C08B0037-00M2F; C08G0065-329; C08G0065-333

BASIC ABSTRACT:
DE 10114134 A1 UPAB: 20060119
NOVELTY - Production of modified hydroxy- polymers with carbamate-linked functional groups comprises reacting a solution of hydroxy-polymer in polar aprotic solvent with carboxylic acid(s), an azide group-transferring reagent and an organic base at elevated temperature.
DETAILED DESCRIPTION - Production of modified hydroxy-polymers with functional group(s) attached to the polymer backbone by carbamate groups comprises reacting a solution of the hydroxy-polymer in polar aprotic solvent(s) with: (a) A carboxylic acid or a mixture of different carboxylic acids; (b) An azide group-transferring reagent; and (c) An organic base at elevated temperature and then working up the resulting polymer, reactants (a), (b) and (c) being used in the amounts required to achieve a controlled degree of modification of the polyhydroxy compound.
USE - Modified hydroxy-polymers with photo-activatable groups obtained by this method are used for the modification of surfaces with C-H bonds by photochemical addition of the hydroxy-polymer, preferably followed by photo-immobilisation of proteins on the remaining photo-activatable groups (claimed). Generally, these polymers may be used as carriers for the covalent bonding of proteins, peptides and other biomolecules for medical and industrial applications.
ADVANTAGE - A simple method for introducing various functional groups into polyhydroxy-polymers, thus enabling the direct bonding of peptides, proteins and other biomolecules in high yield. This gives polymers with good wettability and

biocompatibility, preventing the non-specific bonding of proteins. TECHNOLOGY FOCUS:

POLYMERS - Preferred Methods: Production comprises incubating (A) a mixture of (a), (b) and (c) at elevated temperature and adding the mixture to the hydroxy-polymer solution, or incubating (B) a mixture of hydroxy-polymer(s) in polar aprotic solvent, a first carboxylic acid (a1), reagent (b) and base (c) at elevated temperature, adding a second mixture of a second acid (a2), reagent (b) and base (c) and then incubating the resulting mixture at elevated temperature. A third, fourth, fifth or further mixture with further carboxylic acids may also be added.

ORGANIC CHEMISTRY - Preferred Carboxylic Acids: (A) comprises light-activatable carboxylic acid derivatives, especially acid derivatives of photo-activatable ketones, more especially derivatives of benzophenone, acetophenone or acetonaphthone, preferably 4-benxoylbenzoic acid, 4-(4-benzoylphenyl)-butyric acid or 4-acetyl-benzoic acid or (B) comprises carboxylic acids with ethylenic double bonds.

Preferred Azide Reagents: Diarylphosphoryl-azides, dialkylphosphoryl-azides and trimethylsilyl-azides, especially diphenylphosphoryl-azide or diethylphosphoryl-azide.

Preferred Bases: Tert. amines, especially pyridine, trialkylamines, aryldialkylamines and heteroaryldialkylamines.

Preferred Solvents: Hexa-alkylphosporic acid triamide, N-alkylpyrrolidones, dialkylsulfoxides and/or sulfolanes, especially N-methylpyrrolidone or dimethyl-sulfoxide.

EXTENSION ABSTRACT:

EXAMPLE - A solution of 1 g dextran T-70 in 100 ml N-methylpyrrolidone (NMP) was treated at 110 degreesC with 0.226 g benzophenone-4-carboxylic acid and 0.101 g triethylamine, incubated for 1 hour at 110 degreesC to dissolve the acid and treated with 0.275 g diphenylphosphoroyl-azide. The mixture was heated at 120 degreesC for 12 hours, treated with 100 ml cold water and worked up by centrifuging, washing with 3 x 100 ml ethanol, dissolution in 100 ml water and dialysis against water (3 x 3000 ml). The dextran concentration in the resulting solution was determined with phenol-sulfuric acid and the number of introduced benzophenone groups was determined by spectrophotometry. The yield of modified dextran (A) was 905 mg (90.5%) and the preparation showed an average loading of 70 maleimide groups per 70 kDa. An aqueous solution of (A) (1 mg/ml) was placed in two 96-well micro-titration plates (50 micro-l per well) and incubated overnight in a humidity chamber at 4 degreesC. After washing 4 times with water, one of the plates was exposed to UV light (320 nm; 0.5-3 mW/cm2) for 5 minutes, then both plates were washed 4 times with water containing 0.01% Triton X-100 (TX100). The adhering dextran was oxidised for 60 minutes in the absence of light with 20-mM sodium periodate in 50-mM sodium acetate buffer (pH 5.0; 50 micro-l per well), then oxidation was stopped with a 60-mM aqueous solution of ethylene glycol; the plates were incubated for a further 30 minutes and then washed as above. Both plates were prepared for indirect ELISA by adding 100 micro-l samples of a solution of 100-mM HEPES buffer and 5-mM NaCN.BH3 (pH 7.2) containing 5 micro-g/ml human alpha-feto-protein (AFP), incubated overnight at 4 degreesC, washed 4 times with PBS containing 0.01% TX100 and blocked by treatment for 1 hour at room temperature (RT) with 2% BSA in PBS. 100 micro-l samples of 1 micro-g/ml monoclonal anti-AFP-IgG were added to the wells, with the same solution of non-specific mouse IgG as negative control. The plates were then incubated for 2 hours at 37 degreesC (moist), washed 4 times with tris-buffer saline (TBS, 50 mM Tris, pH 7.8, 150 mM sodium chloride) containing 0.01% TX100. Bound antibodies were determined with a Ziege anti-mouse IgG (Fc specific) alkaline phosphatase conjugate and bound enzyme was quantified with p-nitrophenol-containing substrate buffer in a Bio-Rad 450 micro-plate reader. All wells exposed to UV

showed very strong positive signals after 5-minute incubation with this buffer, except for the negative control wells. All wells in the unexposed plate showed very weak signals (like the negative controls). This showed that modified dextran T-70 covalently bonded with the well surface (Styropor 96) after UV- irradiation and could then be used for subsequent covalent immobilisation of protein on the plastic surface.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A10-E01; A10-E07; A12-W11L; B04-C03; D05-H10

L53 ANSWER 3 OF 7 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2002-329453 [200236] WPIX
DOC. NO. CPI: C2002-095132 [200236]
DOC. NO. NON-CPI: N2002-258616 [200236]
TITLE: Coating on substrate, useful e.g. as carriers for mass spectrometry, comprises adhesion layer and hydrophilic polymer with chains normal to the surface
DERWENT CLASS: A28; A89; A96; B03; B04; D16; D22; G02; P73; S03
INVENTOR: GEDIG E; GEDIG E T; HAALCK L
PATENT ASSIGNEE: (GEDI-I) GEDIG E; (HAAL-I) HAALCK L; (CHEM-N) INST CHEMO & BIOSENSORIK MUENSTER EV; (XANT-N) XANTEC BIOANALYTICS GMBH
COUNTRY COUNT: 94

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2002010759 <--	A2	20020207	(200236)*	DE	49[15]	
DE 10036907 <--	A1	20020214	(200236)	DE		
AU 2001082034 <--	A	20020213	(200238)	EN		
GB 2381482 <--	A	20030507	(200331)	EN		
GB 2381482	B	20041117	(200476)	EN		
US 20050042455	A1	20050224	(200515)	EN		
AU 2001282034	A8	20051006	(200612)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002010759	A2	WO 2001-EP8701	20010727
DE 10036907	A1	DE 2000-10036907	20000728
AU 2001082034	A	AU 2001-82034	20010727
GB 2381482	A	WO 2001-EP8701	20010727
GB 2381482	B	WO 2001-EP8701	20010727
US 20050042455	A1	WO 2001-EP8701	20010727
GB 2381482	B	GB 2003-4305	20010727
GB 2381482	A	GB 2003-4305	20030226
US 20050042455	A1	US 2003-333737	20030715
AU 2001282034	A8	AU 2001-282034	20010727

FILING DETAILS:

PATENT NO	KIND	PATENT NO

AU 2001082034 A	Based on	WO 2002010759 A
GB 2381482 A	Based on	WO 2002010759 A
GB 2381482 B	Based on	WO 2002010759 A
AU 2001282034 A8	Based on	WO 2002010759 A

PRIORITY APPLN. INFO: DE 2000-10036907 20000728
INT. PATENT CLASSIF.:
MAIN: G01N0033-543
SECONDARY: A61K0047-48
IPC RECLASSIF.: G01N0033-543 [I,A]; G01N0033-543 [I,C]; G01N0033-551 [I,A]; G01N0033-551 [I,C]
ECLA: G01N0033-543M; G01N0033-551
USCLASS NCLM: 428/411.100
NCLS: 428/474.400
BASIC ABSTRACT:
WO 2002010759 A2 UPAB: 20050902
NOVELTY - Coating (A), on a substrate, comprises (i) a polymeric adhesion-mediating layer (B) and (ii) a hydrophilic polymer layer (C), containing at least one polymer, in which the polymer chains are at least partly arranged in a brush-like manner.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for preparing (A).
USE - (A) are used (i) in affinity or amperometric sensors and biochips; (ii) as sample carriers for mass spectrometric analysis of chemical or biological compounds; (iii) to determine the isoelectric point of compounds, by measuring adsorption from solutions of differing pH values; (iv) for optimization of chromatography; (v) for concentration and/or isolation of biomolecules, e.g. as coating on chromatographic stationary phases; (vi) for coating nano/micro particles, intracorporeal implants for active ingredient release and/or fillers for bioreactors; (vii) as soil-repellant and anti-adhesion coatings in aqueous media; (viii) as inert/active coating for medical instruments/implants that come into contact with biological media; and (ix) as antisoil coatings for optical components, e.g. spectacles, or for retaining liquid on ophthalmic instruments.
ADVANTAGE - (A) is soil repellant and self-cleaning, particularly with reduced non-specific protein adsorption (improving signal quality in mass spectrometry), but has adjustable immobilization capacity and controllable permeability. The arrangement of (C) increases immobilization capacity (over that of a planar surface) without encountering problems of diffusion limitation associated with thick hydrogel layers, and (A) can be formed, with consistent quality, quickly and simply from aqueous solution.
TECHNOLOGY FOCUS:
POLYMERS - Preferred coating: At least one additional layer (D), of polymer and/or particles, is applied over (C), and (C) consists of at least two different polymers that differ in chemical composition, charge and/or molecular weight. (C) is optionally (i) functionalized for covalent attachment of a ligand, e.g. through iso(thio)cyanate, acyl azide, oxiranyl etc.; (ii) functionalized for immobilization through a metal chelate, particularly by reaction with a nitrilotriacetic acid derivative; (iii) linked to a molecule for immobilizing a ligand by biospecific-recognition interaction and (iv) modified by attachment of a biological effector (E). (B) comprises at least one polymer whose chains are arranged parallel to the substrate surface, or a globular polymer. Alternatively it consists of particles, vesicles or liposomes (or comprises alternating layers of polymers and/or particles) and forms a surface that is rough at the nano- and/or micro-scale. (B)

may include (i) groups that absorb ultra-violet light, e.g. sinapinic acid or its derivatives and/or (ii) pharmaceutically active compounds, bound covalently and/or non-covalently. Particularly (A) is 10-500, best 10-100, nm thick.

Preferred substrate: This may be of e.g. conductive material, glass, metal plastic etc.; optionally functionalized and/or cleaned by treatment with an oxidizing agent, plasma and/or ionizing radiation. The substrate may be in the form of particles.

Preparation: The orientation of the polymer chains, and thus the immobilization capacity of (A), are adjusted through the molecular weight and/or concentration of hydrophilic polymers. The permeability of (C) for substances of different molecular weights is controlled by the concentration ratio between at least one each of low- and high-molecular weight polymers. (B) may be activated with functional groups that allow covalent coupling of (B). (B) and/or (C) may be functionalized, before, during or after coupling, especially (C) is activated, during application to (B), with a mixture of 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide and N-hydroxysuccinimide. During adsorption of (B), the pH and salt concentration are adjusted to provide a rough surface at the nanoscale, and adsorption of (B) and/or coupling of (C) take place in aqueous solution.

Preferred materials: (C) contains one or more of polysaccharide, polyalcohol, polyether, polyamide, poly(carboxylic acid), polysulfate/sulfonate and/or polyphosphate/phosphonate. (B) comprises an amphiphilic polymer, e.g. a polyamine, optionally modified by (di)sulfide, (di)selenide, isothiocyanate etc. functional groups.

BIOLOGY - Preferred materials: Suitable (E) include nucleic acid, protein, antibody, enzyme, adhesion or growth factors and anticoagulants.

EXTENSION ABSTRACT:

EXAMPLE - A glass plate, coated on one side by a 1 mm thick layer of gold, was incubated for 1 hour in an aqueous solution of 0.1% poly(ethylene-co-maleic acid-co- mono(carboxymethylethylsulfide)ester), then the carboxy-functionalized plate converted to reactive ester with 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide and N-hydroxysuccinimide in pH 6 buffer. The substrate was then coated with a few microliters of a solution containing 20% dextran (containing one carboxy group per six anhydroglucose units), 2% glucuronic acid and 1% dimethylaminopyridine. The solvent (unspecified) was removed in vacuo and the plate incubated at 50 degreesC for 10 minutes, then any excess dextran removed by treating with 0.1 M hydrochloric acid for 5 minutes. The coated plate did not adsorb bovine serum albumin; contrast an unmodified plate that irreversibly bound the protein at 5 ng/mm2, i.e. almost complete coverage.

FILE SEGMENT: CPI; GMPI; EPI
MANUAL CODE: CPI: A10-E01; A12-L04B; A12-V03C; A12-V03D; A12-W11L; B04-C03; B07-D03; B10-A20; B10-C04B; B11-C08; B12-K04; D05-H09; D09-C01; G02-A05
EPI: S03-E14H4

L53 ANSWER 4 OF 7 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2000-639500 [200062] WPIX
DOC. NO. CPI: C2000-192573 [200062]
TITLE: Block copolymers with trifluoroacetyl or pentafluoropropionyl side groups, used for the production of surfaces with reversibly changeable hydrophilicity, e.g. on printing plates, or for marking plastics

DERWENT CLASS: A18; A82; A97; G02; G05
INVENTOR: BOEKER A; OBER C; REIHS K
PATENT ASSIGNEE: (FARB-C) BAYER AG; (SUNY-N) SUNYX SURFACE NANOTECHNOLOGIES GMBH
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
DE 19910811 <--	A1	20000921	(200062)*	DE	5[0]	
DE 19910811 <--	C2	20021114	(200277)	DE		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19910811 A1		DE 1999-19910811	19990311

PRIORITY APPLN. INFO: DE 1999-19910811 19990311
INT. PATENT CLASSIF.:
IPC RECLASSIF.: C08F0297-00 [I,C]; C08F0297-02 [I,A]; C08F0297-04 [I,A]; C08F0008-00 [I,A]; C08F0008-00 [I,C]; C08F0008-14 [I,A]; C08L0053-00 [I,A]; C08L0053-00 [I,C]; C08L0053-02 [I,A]; C09D0153-00 [I,A]; C09D0153-00 [I,C]; C09D0153-02 [I,A]
ECLA: C08F0008-00+297/00; C08F0008-14; C08F0297-02; C08F0297-04; C08L0053-00; C08L0053-02; C09D0153-00; C09D0153-02

BASIC ABSTRACT:

DE 19910811 A1 UPAB: 20060117

NOVELTY - Block copolymers (I) with trifluoroacetyl or pentafluoropropionyl side groups.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for (a) a process for the production of polymers (I) from block copolymers with isoprene units contained unsaturated double bonds, comprising block(s) (A) derived from mono-unsaturated monomer units and block(s) (B) of polymerized isoprene units, by hydroxylating the polymer and esterifying the hydroxyl groups with trifluoroacetic (TFAA) or pentafluoropropionic (PFPA) acids or their derivatives; (b) mouldings and coatings containing (I); (c) information storage media and reusable printing plates with (I) on the surface.

USE - For the production of molded products with surfaces showing reversibly changeable hydrophilicity, or for the marking of plastics (claimed). Applications include data storage media, printing plates and identification marks on plastic surfaces.

ADVANTAGE - Hydrophilisable block copolymers with fluorinated side groups which can be quantitatively cleaved at temperatures far below the polymer decomposition temperature (e.g. with a laser beam or by exposure to light through a mask) to form local hydrophilic areas or patterns to which ink etc. becomes preferentially attached. At the end of a print run, the surface can be made hydrophobic again by regeneration with perfluoro-acid and then restructured as required.

TECHNOLOGY FOCUS:

POLYMERS - Preferred Composition: Polymers (I) consist of at least one block (A) of mono-ethylenically unsaturated monomer units and at least one block (B) of polymerized isoprene units with side chains obtained by the

hydrolysis of unsaturated double bonds followed by esterification with TFAA or PFPA. At least 20 mol% of the double bonds in (B) are converted into side groups with trifluoroacetyl or pentafluoropropionyl residues. The mol ratio of monomer units in blocks (A) and (B) is at least 1:2 and block(s) (B) contain 1,2- and 3,4-linked isoprene units (preferably at least 50) in a statistical distribution. Preferred block copolymers have the formula (I), in which

m = at least 200;
n = at least 100;
RF = trifluoromethyl or pentafluoroethyl groups
. Preferred Process: The unsaturated double bonds are hydroxylated by hydroboration in an oxidizing medium.

ORGANIC CHEMISTRY - Preferred Monomers: Block (A) is derived from alpha-olefins, vinyl-aromatics, mono-unsaturated mono- or di-carboxylic acids and their esters, amides or anhydrides.

EXTENSION ABSTRACT:

EXAMPLE - A block copolymer was obtained by anionic polymerisation of styrene and isoprene (mol ratio, 1:2) at -78degreesC with sec.-butyl-lithium as initiator. A solution of 10 g block copolymer in THF was treated at -15degreesC with 67 ml 9-bora-bicyclo(3.3.1)nonane and then reacted with 7 ml 6-N sodium hydroxide solution and 14 ml 30 wt% hydrogen peroxide, after which the mixture was worked up by precipitation with methanol/water to give a copolymer in which the double bonds had been quantitatively hydroxylated. A solution of 5 g hydroxylated copolymer in THF was reacted for 24 hours at 25degreesC with 0.1-0.2 g pentafluoropropionyl chloride and the esterified polymer was worked up as above. The product was hydrophilised by heating for 20 minutes at 340degreesC, with 61 wt% cleavage of side chains (calculated: 56 wt%); the decomposition temperature of the block copolymer was 419degreesC. The wetting angle for water on the polymer surface was 109degrees before heating and 88degrees after heating.

FILE SEGMENT: CPI
MANUAL CODE: CPI: A04-B07; A09-A08; A10-E01; A11-C04D; A12-B07; A12-W07A; G02-A05; G05-A01

L53 ANSWER 5 OF 7 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2000-639499 [200062] WPIX
DOC. NO. CPI: C2000-192572 [200062]
TITLE: Block copolymers with perfluorinated aliphatic side groups of at least 5 carbon atoms, used for the production of surfaces with reversibly changeable hydrophilicity, e.g. on printing plates, or for marking plastics
DERWENT CLASS: A81; A82; A97; G02; G05; P75
INVENTOR: BOEKER A; OBER C; REIHS K
PATENT ASSIGNEE: (FARB-C) BAYER AG
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
DE 19910810 <--	A1	20000921	(200062)*	DE	5[0]	
DE 19910810 <--	C2	20010628	(200137)	DE		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE

DE 19910810 A1 19990311	DE 1999-19910810
DE 19910810 C2 19990311	DE 1999-19910810

PRIORITY APPLN. INFO: DE 1999-19910810 19990311
INT. PATENT CLASSIF.:
IPC RECLASSIF.: C08F0297-00 [I,C]; C08F0297-02 [I,A]; C08F0297-04 [I,A]; C08F0008-00 [I,A]; C08F0008-00 [I,C]
ECLA: C08F0008-00+297/00; C08F0297-02; C08F0297-04
BASIC ABSTRACT:

DE 19910810 A1 UPAB: 20060117

NOVELTY - Block copolymers with side groups containing perfluorinated aliphatic carboxylic acid residues with at least 5 carbon atoms.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for (a) a process for the production of these polymers from block copolymers with isoprene units contained unsaturated double bonds, comprising block(s) (A) derived from mono-unsaturated monomer units and block(s) (B) of polymerized isoprene units, by hydroxylating the polymer and esterifying the hydroxyl groups with perfluorinated aliphatic carboxylic acids with at least 5 carbon atoms or their derivatives; (b) mouldings and coatings containing these block copolymers; (c) information storage media and reusable printing plates with these block copolymers on the surface.

USE - For the production of molded products with surfaces showing reversibly changeable hydrophilicity, or for the marking of plastics (claimed). Applications include data storage media, printing plates and identification marks on plastic surfaces.

ADVANTAGE - Hydrophilisable block copolymers which are more hydrophobic than prior-art polymers with perfluorobutyric acid side chains. The fluorinated side groups in these copolymers can be quantitatively cleaved at temperatures far below the polymer decomposition temperature (e.g. with a laser beam or by exposure to light through a mask) to form local hydrophilic areas or patterns to which ink etc. becomes preferentially attached. At the end of a print run, the surface can be made hydrophobic again, e.g. by regeneration with perfluoro-acid, and then restructured as required.

TECHNOLOGY FOCUS:

POLYMERS - Preferred Composition: These polymers consist of at least one block (A) of mono-ethylenically unsaturated monomer units and at least one block (B) of polymerized isoprene units with side chains obtained by the hydrolysis of unsaturated double bonds and esterification with perfluoro-aliphatic carboxylic acids with at least 5 carbon atoms. At least 20 mol% of the double bonds in (B) are converted into side groups containing perfluorinated aliphatic carboxylic acid residues with at least 5 C. The mol ratio of monomer units in blocks (A) and (B) is at least 1:2. Preferred block copolymers are polymers of formula (I), in which

m = at least 200;
n = at least 100;
RF = a perfluoroalkyl group with at least 4 carbon atoms

. Preferred Process: The unsaturated double bonds are hydroxylated by hydroboration in an oxidizing medium.

ORGANIC CHEMISTRY - Preferred Monomers: Block (A) is derived from alpha-olefins, vinyl-aromatics, mono-unsaturated mono- or di-carboxylic acids and their esters, amides or anhydrides. Block (B) contains 1,2- and 3,4-linked isoprene units in a statistical distribution, preferably with at least 50 monomer units.

EXTENSION ABSTRACT:

EXAMPLE - A block copolymer was obtained by anionic polymerisation of styrene and isoprene (mol ratio, 1:2) at -78degreesC with sec.-butyl-lithium as initiator. A solution of 10 g block copolymer in THF was treated at -15degreesC with 67 ml 9-bora-bicyclo(3.3.1)nonane and then reacted with 7 ml 6-N sodium hydroxide solution and 14 ml 30 wt% hydrogen peroxide, after which the mixture was worked up by precipitation with methanol/water to give a copolymer in which the double bonds had been quantitatively hydroxylated. A solution of 5 g hydroxylated copolymer in THF was reacted for 24 hours at 25degreesC with 0.1-0.2 g decapentafluoro-octanoyl chloride and the esterified polymer was worked up as above. The product was hydrophilised by heating for 20 minutes at 345degreesC, with 75 wt% cleavage of side chains (calculated: 72 wt%); the decomposition temperature of the block copolymer was 419degreesC. The wetting angle for water on the polymer surface was 121degrees before heating and 86degrees after heating.

FILE SEGMENT: CPI; GMPI
MANUAL CODE: CPI: A04-B07; A09-A08; A10-E01; A11-C04D; A12-B07; A12-W07A; G02-A05; G05-A01

L53 ANSWER 6 OF 7 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 2000-564462 [200052] WPIX
DOC. NO. CPI: C2000-168021 [200052]
DOC. NO. NON-CPI: N2000-416872 [200052]
TITLE: Photosensitive lithographic form plate used for printing comprises a photosensitive layer containing an infrared light absorbing agent having a hydrophobic functional group which changes to hydrophilic due to heat
DERWENT CLASS: A89; E13; G06; P83
INVENTOR: KAWAMURA K; NAKAMURA I; OOHASHI H
PATENT ASSIGNEE: (FUJF-C) FUJI PHOTO FILM CO LTD
COUNTRY COUNT: 1

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 6096479 <--	A	20000801	(200052)*	EN	54[0]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 6096479	A	US 1999-259345	19990301

PRIORITY APPLN. INFO: JP 1999-3023302 19990416
JP 1998-3086517 19981023
JP 1998-3086519 19981023
JP 1999-30223304 19990416

INT. PATENT CLASSIF.:
IPC RECLASSIF.: B41C0001-10 [I,A]; B41C0001-10 [I,C]; B41M0005-36 [I,A]; B41M0005-36 [I,C]; B41M0005-40 [N,A]; B41M0005-40 [I,C]; B41M0005-46 [I,A]; G03F0007-004 [I,A]; G03F0007-004 [I,C]; G03F0007-038 [I,A]; G03F0007-038 [I,C]
ECLA: B41C0001-10A; B41C0001-10B; B41M0005-46B; G03F0007-004D; G03F0007-038
ICO: L41C0001:10A; L41M0005:46B
BASIC ABSTRACT:
US 6096479 A UPAB: 20060116

NOVELTY - A photosensitive lithographic form plate(1) comprises a photosensitive layer (2) disposed on a substrate and which contains an infrared absorbing agent (3) having a hydrophobic functional group which changes to hydrophilic due to heat.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a radiation sensitive lithographic form plate which comprises (3) and a binder(4) which has a crosslinked structure having functional group that changes from hydrophobic to hydrophilic due to acid, radiation or heat.
USE - For printing (machine plate) by directly writing digital data of a computer or the like.
ADVANTAGE - Lithographic form plate shows excellent image-forming properties such as high sensitivity and developing latitude. The film strength of the photosensitive layer is improved, no residual film remains at the exposed portions, no scrum-like solids are left in the wetting water used during printing and stains are not formed.
TECHNOLOGY FOCUS:
IMAGING AND COMMUNICATION - Preferred Photosensitive Layer: The hydrophobic functional group is bound to an aromatic ring within (3) directly or via a binding group.
(2) includes an image forming material which comprises:
(A) a macromolecular binder insoluble in water and soluble in an aqueous solution of an alkali and (3) having a thermally decomposable sulfonic ester group; and
(B) a macromolecular compound which decomposes due to heat or an acid and is soluble in water or an alkali and (3) having a thermally decomposable sulfonic ester group. In the exposed portions of (2), decomposition of the macromolecular compound is accelerated by the sulfonic acid formed by exposure to the infrared light
.
The macromolecular compound comprises a polymer of a sulfonic ester or a polymer of a carboxylic ester. (2) has several water-insoluble solid particles, and is structured such that these particles are covered by the binder. The solid particles are bound together by the binder such that each particle is contacted by others at some portions and gaps are formed between them.
Preferred Binder: (4) is obtained by reacting a compound having a functional group which changes from hydrophobic to hydrophilic due to an acid, radiation or heat and which reacts with a hydrolysis polymerizable compound of formula (Q1)n-X-(OQ2)4-n (II):
Q1 and Q2 = alkyl or aryl group;
X = Si, Al, Ti or Zr; and
n = 0-2.
ORGANIC CHEMISTRY - Preferred Sulfonic Ester: (3) is of formula (I):
A1 and A2 = hydrophobic functional group;
Ar1 and Ar2 = aryl group;
B1 -B4 and C1-C3 = H, halogen, alkyl, aryl, alkenyl or alkynyl group and any two of B1-B4 and C1 - C3 may form a ring;
D1 and D2 = alkyl, aryl, alkenyl or alkynyl group ;
X- = a counter anion; and
Y1, Y2, Z1, Z2 = a divalent binding group formed from nonmetal atoms.
Before (3) is decomposed by heating, (3) has a function to decrease a rate of dissolution of the macromolecular binder into the aqueous solution of an alkali. (3) is decomposed with heating by irradiation of infrared light to form the sulfonic acid in portions of (2), exposed to the infrared light. In the structure of the thermally decomposable sulfonic ester group, a

sulfonic acid is bonded to an ester group. The ester group includes optionally substituted primary, secondary, or tertiary alkyl group, optionally substituted aryl, and alkenyl group or a cyclic imide group.

EXTENSION ABSTRACT:

SPECIFIC COMPOUNDS - 73 compounds of the infrared light absorbing agent are disclosed, including 3-(2-(1,1-dimethyl-3-(2-(1-methoxy-2-propyloxy)sulfonylethyl)- benz(e)indol-2-ylidene)ethylidene-2-chloro-1-(2-(1,1-dimethyl-3-(2-(1- methoxy-2-propyloxy)sulfonylethyl))-1H-benz(e)-indolium-2-yl)- ethenyl)-2-cyclohexene tosylate (Ia): EXAMPLE - An aluminum plate (material 1050) was degreased by washing with trichloroethylene and was surface-roughened. Thus processed plate was dipped into 25% aqueous solution of NaOH at 45degreesC for 9 seconds for etching, washed, then dipped into a 2% nitric acid for 25 seconds and washed. An oxide coating layer of 3 g/m2 was formed on it by direct current anode oxidation using 7% H2SO4, washed and dried. A photosensitive liquid prepared with (g) thermally decomposable polymer (1), a dye (obtained by converting the counter anion of Victoria Pure Blue BOH(TM) (dye) to 1-naphthalene sulfonate anion) (0.05), Megafac F-117(TM) (surfactant containing fluorine) (0.06), methyl ethyl ketone (20), methanol (7) and 3-(2-(1,1-dimethyl-3-(2-(1-methoxy-2-propyloxy)sulfonylethyl) -benz(e)indol-2-ylidene)ethylidene-2-chloro-1-(2-(1,1-dimethyl-3-(2- (1-methoxy-2-propyloxy)sulfonylethyl))-1H-benz(e)-indolium-2-yl)- ethenyl)-2-cyclohexene tosylate (0.15) and applied to the aluminum plate. The coated plate was dried at 100degreesC for 2 minutes to obtain the lithographic original plate. The form plate was exposed to infrared laser and then heated at 110degreesC for 1 minute and then used directly for printing. - The plate showed high sensitivity (25 microns) and no stains. A comparative lithographic plate was prepared using 3-(2-(1,1-dimethyl-3-methyl-benz(e)indol-2-ylidene) ethylidene-2-chloro-1-(2- (1,1-dimethyl-3-methyl-1H-benz(e)-indolium- 2-yl)-ethenyl)-2-cyclohexene tosylate as the infrared light absorbing agent. The form plate showed low sensitivity (18 microns) and stains were formed.

FILE SEGMENT: CPI; GMPI
MANUAL CODE: CPI: A08-M10; A12-L02B2; A12-W07B; E25-B03; G05-A01; G06-D06; G06-F03C; G06-F03D

L53 ANSWER 7 OF 7 WPIX COPYRIGHT 2010 THOMSON REUTERS on STN
ACCESSION NUMBER: 1997-310722 [199728] WPIX
CROSS REFERENCE: 1997-272445
DOC. NO. CPI: C1997-100034 [199728]
DOC. NO. NON-CPI: N1997-257353 [199728]
TITLE: Bio-sensor for assay of nucleic acid comprising membrane containing ion channels - and carrying oligo:nucleotide(s) such that channels are blocked when hybridisation occurs, also for detecting herpes and human immunodeficiency virus
DERWENT CLASS: A96; B04; D16; S03
INVENTOR: PITTNER F; SCHALKHAMMER T; SMETAZKO M; VALINA-SABA M; WEISS-WICHERT C
PATENT ASSIGNEE: (PITT-I) PITTNER F; (SCHA-I) SCHALKHAMMER T
COUNTRY COUNT: 18

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 9720203 <--	A1	19970605	(199728)*	DE	31[6]	
AT 9600485 <--	A	19971115	(199751)	DE		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9720203 A1		WO 1996-AT230	19961121
AT 9600485 A		AT 1996-485	19960314

PRIORITY APPLN. INFO: AT 1996-485 19960314
AT 1995-1943 19951128

INT. PATENT CLASSIF.:
IPC RECLASSIF.: B01D0069-00 [I,C]; B01D0069-02 [I,A]; B01D0069-12 [I,A]; B01D0071-00 [I,C]; B01D0071-06 [I,A]; B01D0071-76 [I,A]; C07K0017-00 [I,C]; C07K0017-14 [I,A]; C12Q0001-00 [I,A]; C12Q0001-00 [I,C]; G01N0033-48 [I,A]; G01N0033-48 [I,C]; G01N0033-53 [I,A]; G01N0033-53 [I,C]; G01N0033-566 [I,A]; G01N0033-566 [I,C]
ECLA: C12Q0001-00B2

BASIC ABSTRACT:

WO 1997020203 A1 UPAB: 20060113 Biosensor includes a membrane in which channels or channel-forming molecules (A) have been incorporated, with either (a) ≥ 1 oligonucleotide (or analogue), DNA or RNA covalently immobilised on it or (b) the membrane consists of an ion-impermeable layer of lipid molecules deposited on a layer permeable for ions or molecules of molecular weight below 1500 Da. In this case either (i) interaction between the layers is intensified by using interaction of organoboron compounds, particularly boronic acids or their derivatives or (ii) stable lipids of formula (I) are used. Advantageously these structural elements are combined. Xa, Xb = CH2, CH-alkyl, C(alkyl)2, CF2, oxygen, sulphur, carbonyl or p-phenylene; transmembrane chains (the parts joined by Z1 and Z2) are more than 11 atoms long; m, n = not defined, but are preferably the same; Z1, Z2 = any organic or organosilicon linker, with the distance between the 2 transmembrane chains less than the length of 6 carbon atoms; these linkers are either hydrophilic or have a reactive group for coupling to another molecule, preferably of up to 3C and particularly oxalic, malonic, malic, succinic, glutaric or phthalic acids or their derivatives.

USE - The biosensors are used: - (i) to determine concentration of RNA or DNA (from changes in ion and/or electrical current in the channels induced by hybridisation), of human, plant, animal, viral or bacterial origin and - (ii) to detect herpes or human immunodeficiency viruses (all claimed).

ADVANTAGE - The membranes prevent other components of the sample from interfering with the measured signal. The biosensor is very sensitive, selective and rapid, simple and suitable for routine analysis.

DOCUMENTATION ABSTRACT:

WO9720203

Biosensor includes a membrane in which channels or channel-forming molecules (A) have been incorporated, with either (a) ≥ 1 oligonucleotide (or analogue), DNA or RNA covalently immobilised on it or (b) the membrane consists of an ion-impermeable layer of lipid molecules deposited on a layer permeable for ions or molecules of molecular weight below 1500 Da. In this case either (i) interaction between the layers is intensified by using interaction of organoboron compounds, particularly boronic acids or their derivatives or (ii) stable lipids of formula (I) are used. Advantageously, these structural elements are combined.

Xa, Xb = CH2, CH-alkyl, C(alkyl)2, CF2, oxygen, sulphur, carbonyl or p-phenylene; transmembrane chains (the parts joined by Z1

and Z2) are more than 11 atoms long;

m, n = not defined, but are preferably the same;

Z1, Z2 = any organic or organosilicon linker, with the distance between the 2 transmembrane chains less than the length of 6 carbon atoms; these linkers are either hydrophilic or have a reactive group for coupling to another molecule, preferably of up to 3C and particularly oxalic, malonic, malic, succinic, glutaric or phthalic acids or their derivatives.

USE

The biosensors are used:

(i) to determine concentration of RNA or DNA (from changes in ion and/or electrical current in the channels induced by hybridisation), of human, plant, animal, viral or bacterial origin and

(ii) to detect herpes or human immunodeficiency viruses (all claimed).

ADVANTAGE

The membranes prevent other components of the sample from interfering with the measured signal. The biosensor is very sensitive, selective and rapid, simple and suitable for routine analysis.

EXAMPLE

A solution of lipid in organic solvent (2-30 μg/100 cm2 surface area) and modified ion-channels (10-108 molecules/mm2) was spread at the air-liquid interface in a Langmiur-Blodgett trough, compacted to a semicrystalline phase and the sensor was drawn through the film.

Unsaturated lipid films were covered with a mask and irradiated with light from a mercury lamp so that lipids within the layer were crosslinked (also to a reactive carrier). (MSS)

PREFERRED BIOSENSOR

The membrane is applied to a metal or semiconductor electrode, either directly or with a sub-membrane volume of < 3 cm3. The membranes are supported by (or covalently bonded to) water-containing and/or conductive, covalently or ionically crosslinked (bio) polymers, gels, dendrimers or crystalline solids. One side of the membrane is in contact with an aqueous/organic, organic or organosilicon liquid (the last containing dissolved salts or ion carriers).

The membrane may include lipids other than (I) to modify melting temperature, phase formation, fluidity or solubility properties.

(I) may be replaced by similar compounds having ether or carboxylic ester residues joining the Z and X groups.

To improve adhesion, a lipid derivative with boronic acid or hydroxy groups is used, together with a carrier having the other of these groups. Preferably the hydroxy groups are provided by diols.

PREFERRED MATERIALS

(A) are peptides or proteins, particularly peptide channels with a 6.3 (β-) helix, especially gramicidins or their covalently coupled dimers; covalently crosslinked alamethicin or stable monomeric bacterial toxins. These peptides may have a ligand attached at or near the C-terminus.

Alternatively, (A) are formed from synthetic cyclic peptides or cyclic sugar-based compounds such as hydrophobically modified cyclodextrin, or the channels are holes in the membrane created e.g. by radioactive bombardment or etching.

Linkers in (I) may carry reactive boronic acid or

silicon derivatives or they consist of maleic acid derivatives which may:

(a) be polymerised to form high molecular weight polymeric lipids,

(b) oxidised with osmium tetroxide to form diols for reaction with boronic acids in adjacent layers,

(c) derivatised or crosslinked by reaction with thiols or

(d) derivatised by reaction with boron compounds.

The effect on the channels of hybridised nucleic acid may be intensified by using nucleic acid intercalating agents or specific binding proteins.

FILE SEGMENT: CPI; EPI
MANUAL CODE: CPI: A10-E01; A12-L04; A12-V03C2; B04-B03C; B04-E01; B04-F11; B11-C08E5; B12-K04A4; B12-K04F; D05-H06; D05-H09
EPI: S03-E03C1

=> FIL INSPEC COMPENDEX PASCAL DISSABS EMA
FILE 'INSPEC' ENTERED AT 15:13:44 ON 08 JUN 2010
Compiled and produced by the IET in association WITH FIZ KARLSRUHE
COPYRIGHT 2010 (c) THE INSTITUTION OF ENGINEERING AND TECHNOLOGY (IET)

FILE 'COMPENDEX' ENTERED AT 15:13:44 ON 08 JUN 2010
Compendex Compilation and Indexing (C) 2010
Elsevier Engineering Informat
ion Inc (EEI). All rights reserved.
Compendex (R) is a registered Trademark
of Elsevier Engineering Information Inc.

FILE 'PASCAL' ENTERED AT 15:13:44 ON 08 JUN 2010
Any reproduction or dissemination in part or in full,
by means of any process and on any support whatsoever
is prohibited without the prior written agreement of INIST-CNRS.
COPYRIGHT (C) 2010 INIST-CNRS. All rights reserved.

FILE 'DISSABS' ENTERED AT 15:13:44 ON 08 JUN 2010
COPYRIGHT (C) 2010 ProQuest Information and Learning Company; All Rights Res
erved.

FILE 'EMA' ENTERED AT 15:13:44 ON 08 JUN 2010
COPYRIGHT (C) 2010 Cambridge Scientific Abstracts (CSA)

=> D L140 1-7 ALL

L140 ANSWER 1 OF 7 INSPEC (C) 2010 IET on STN
AN 1999:6399509 INSPEC DN A1999-24-8160-005; B1999-12-0560-006 Full-text
TI Ar plasma treated and Al metallised polycarbonate: a XPS, mass spectroscopy and SFM study
AU Seidel, C.; Kopf, H.; Gotsmann, B.; Vieth, T.; Fuchs, H. (Phys. Inst., Munster Univ., Germany); Reihs, K.
SO Applied Surface Science (Aug. 1999), vol.150, no.1-4, p. 19-33, 12 refs.
CODEN: ASUSEE, ISSN: 0169-4332
SICI: 0169-4332(199908)150:1/4L.19:PTMP;1-6
Price: 0169-4332/99/$20.00
Doc.No.: S0169-4332(99)00012-4
Published by: Elsevier, Netherlands
DT Journal

TC Experimental
CY Netherlands
LA English
AB Ar plasma etched and Al metallised bisphenol A carbonate was analysed by mass spectroscopy, photoelectron spectroscopy (XPS), and scanning force microscopy (SFM). We mainly used a technical polymer (Makrolon 2808, Bayer) made by injection-moulding, as well as spin coated bisphenol A carbonate (n=1) and polycarbonate (PC) (n=115). The mass spectroscopy during the etching process shows the degradation of the PC in the form of carbon monoxide, carbon dioxide and methyl groups. The photoelectron spectroscopy shows in detail the surface modification after Ar plasma treatment and metallisation. The plasma induces a reduction of the carboxylic carbon (C 1s), a strong reduction of singly bonded oxygen (O 1s) and also a slight reduction of doubly bonded oxygen. After Al metallisation, a reaction of Al with the oxygen groups and an interaction with the aromatic system is documented. Ar plasma etching increases the chemical interaction of Al mainly with the aromatic carbon. The X-ray photoelectron spectroscopy of metallised PC under different initial conditions shows a strong influence of incorporated water in the PC bulk that cannot be seen by XPS on uncoated PC. The O 1s signal increases during metallisation and results in an oxidation of Al probably caused by the fact that the hydrophobic surfaces becomes hydrophillic. Temperature-dependent XPS was done on technical PC samples and on spin coated samples (n=1, n=115) and supports the influence of the bulk state for the Al-PC interface. For n=1 carbonate, a diffusion of Al into the PC volume was observed. The SFM measurements showed a roughening effect on the nanometer scale even after short treatment times. Al can be seen as a weakly bound cluster on the virgin PC, and if a pre-etching is done, Al seems to grow as a good wetting film. The adhesion force of Al films on PC without any influence of the volume can be explained by the chemical bonding of Al to the carboxylic and aromatic systems. The adhesion can be increased by plasma pre-treatment. A breakdown of the adhesion on technical PC is probably induced by a reaction of Al with mobile intercalated gas, that is enriched near the surface after Al coating
CC A8160J Surface treatment and degradation of polymers and plastics; A6140K Structure of polymers, elastomers, and plastics; A6855 Thin film growth, structure, and epitaxy; A5275R Plasma applications in manufacturing and materials processing; A7960G Photoelectron spectra of composite surfaces; A8280P Electron spectroscopy for chemical analysis (photoelectron, Auger spectroscopy, etc.); A8280M Mass spectrometry (chemical analysis); A6820 Solid surface structure; A8190 Other topics in materials science; A6630N Chemical interdiffusion in solids; A6822 Surface diffusion, segregation and interfacial compound formation; A8265J Heterogeneous catalysis at surfaces and other surface reactions; B0560 Polymers and plastics (engineering materials science)
CT adhesion; aluminium; atomic force microscopy; bonds (chemical); chemical interdiffusion; mass spectroscopic chemical analysis; metallisation; plasma materials processing; polymer films; polymer structure; spin coating; sputter etching; surface chemistry; surface topography; X-ray photoelectron spectra
ST Ar plasma treated polycarbonate; Al metallised polycarbonate; XPS; mass spectroscopy; SFM study; bisphenol A carbonate; photoelectron spectroscopy; scanning force microscopy; spin coated bisphenol A carbonate; surface modification; reduction; carboxylic carbon; doubly bonded oxygen; chemical interaction; aromatic carbon; O 1s signal; oxidation; hydrophobic surface; hydrophillic surface; temperature-dependent XPS; diffusion; roughening effect; weakly bound cluster; wetting film; adhesion force; chemical bonding; plasma pre-treatment; Al

CHI Al int, Al el
ET Al; Ar; C; O; C*Al*P; PC; P cp; cp; C cp; Al-PC

L140 ANSWER 2 OF 7 INSPEC (C) 2010 IET on STN
AN 1989:3487674 INSPEC DN A1989-136770 Full-text
TI Ion bombardment of polyimide films
AU Bachman, B.J.; Vasile, M.J. (AT&T Bell Labs., Murray Hill, NJ, USA)
SO Journal of Vacuum Science & Technology A (Vacuum, Surfaces, and Films) (July-Aug. 1989), vol.7, no.4, p. 2709-16, 21 refs.
CODEN: JVTAD6, ISSN: 0734-2101
Price: 0734-2101/89/042709-08$01.00
DT Journal
TC Experimental
CY United States
LA English
AB Surface modification techniques such as wet chemical etching, oxidizing flames, and plasma treatments (inert ion sputtering and reactive ion etching) have been used to change the surface chemistry of polymers and improve adhesion. With an increase in the use of polyimides for microelectronic applications, the technique of ion sputtering to enhance polymer-to-metal adhesion is receiving increased attention. For this study, the argon-ion bombardment surfaces of pyromellitic dianhydride and oxydianiline (PMDA-ODA) and biphenyl tetracarboxylic dianhydride and phenylene diamine (BPDA-PDA) polyimide films were characterized with X-ray photoelectron spectroscopy (XPS) as a function of ion dose. Graphite and high-density polyethylene were also examined by XPS for comparison of C 1s peak width and binding-energy assignments. Results indicate that at low ion doses the surface of the polyimide does not change chemically, although adsorbed species are eliminated. At higher doses the chemical composition is altered and is dramatically reflected in the C 1s spectra where graphiticlike structures become evident and the prominent carbonyl peak is reduced significantly. Both polyimides demonstrate similar chemical changes after heavy ion bombardment. Atomic composition of PMDA-ODA and BPDA-PDA polymers are almost identical after heavy ion bombardment
CC A7920N Atom-, molecule-, and ion-surface impact and interactions; A7960 Photoemission and photoelectron spectra (condensed matter); A6140K Structure of polymers, elastomers, and plastics
CT ion-surface impact; polymer films; surface structure; X-ray photoelectron spectra
ST surface modification; wet chemical etching; oxidizing flames; plasma treatments; inert ion sputtering; reactive ion etching; surface chemistry; polymers; adhesion; polyimides; microelectronic applications; pyromellitic dianhydride; oxydianiline; PMDA-ODA; biphenyl tetracarboxylic dianhydride; phenylene diamine; BPDA-PDA; polyimide films; X-ray photoelectron spectroscopy; binding-energy
ET C

L140 ANSWER 3 OF 7 COMPENDEX COPYRIGHT 2010 EEI on STN
AN 1983-100151385 COMPENDEX Full-text
TI SURFACE MODIFICATION OF WOOD USING NITRIC ACID.
AU Subramanian R.V.; Balaba W.M.; Somasekharan K.N.
SO Journal of Adhesion (1981) Volume 14, Number 3-4, pp. 295-304, 8 refs.
CODEN: JADNAJ ISSN: 0021-8464
Conference: Pap presented at the Int Symp on Adhes and Adhes for Struct Mater, 1st Pullman, Wash, USA, 29 Sep 1981-1 Oct 1981
DT Journal
LA English

ED Entered STN: 2 Jan 2009
Last updated on STN: 2 Jan 2009

AB In the reported experiments, surface modification of wood flakes by oxidation with nitric acid has been investigated at three different moisture contents of wood, and two different concentrations of the oxidant. It is shown that a significant number of the acid groups generated are chemically linked to wood. Increasing moisture content in wood has the effect of local dilution of the nitric acid oxidant while reduction in moisture content of wood during drying makes potential oxidation sites less accessible. Thus, two different regimes of oxidation, one of more accessible, and another, of less accessible, sites are observed. The nature of the generated acid is established as carboxylic, which is capable of undergoing a coupling reaction with 2-(1-aziridinyl)ethyl methacrylate. The catalysis of in situ polymerization of furfuryl alcohol by bound acid has also been shown to occur.

CC 443 Meteorology; 802 Chemical Apparatus and Plants, Unit Operations, Unit Processes; 804 Chemical Products Generally; 811 Cellulose, Paper and Wood Products; 815 Polymers and Polymer Science; 931 Applied Physics Generally

CT *WOOD; CHEMICAL REACTIONS:Oxidation; MOISTURE; NITRIC ACID; ORGANIC COMPOUNDS:Chemistry; POLYMERIZATION:In Situ

ST FURFURYL ALCOHOL; REACTION MECHANISMS; WOOD SURFACE MODIFICATION

L140 ANSWER 4 OF 7 PASCAL COPYRIGHT 2010 INIST-CNRS. ALL RIGHTS RESERVED. on STN

AN 2000-0333125 PASCAL Full-text

CP Copyright .COPYRGT. 2000 INIST-CNRS. All rights reserved.

TIEN Poly(aniline)-poly(acrylate) composite films as modified electrodes for the oxidation of NADH

AU BARTLETT P. N.; SIMON E.

CS Department of Chemistry, University of Southampton, Southampton, SO17 1BJ, United Kingdom

SO PCCP. Physical chemistry chemical physics : (Print), (2000) , 2(11), 2599-2606, 24 refs.
ISSN: 1463-9076

DT Journal

BL Analytic

CY United Kingdom

LA English

AV INIST-26801, 354000082441220180

AB Poly(aniline), electrochemically deposited on an electrode surface in the presence of poly(acrylic acid), forms a film which remains protonated, and conducting, at pH 7. The resulting modified electrode is an electrocatalytic surface for NADH oxidation at +0.05 V vs. SCE in 0.1 M citrate-phosphate buffer at pH 7. The amperometric responses of these composite poly(aniline) films for NADH oxidation were studied in detail and fitted to a kinetic model in which the NADH diffuses into the polymer film and then binds to catalytic sites within the film where it undergoes reduction to NAD.sup.+. The rate determining process depends on the concentration of NADH present and the polymer film thickness. A comparison of the results presented here for the poly(aniline)-poly(acrylate) films with earlier work on poly(aniline)-poly(vinylsulfonate) films shows that the currents obtained for NADH at these poly(aniline)-poly(acrylate) films are approximately one third of those obtained for the poly(aniline)--poly(vinylsulfonate) films under similar conditions, that the currents saturate at lower NADH concentration and that the response is less stable towards repeated measurements. The poly(aniline)-poly(acrylate) films are, however, less readily inhibited by NAD.sup.+ and possess the potential advantage that the carboxylate groups can be used as

sites for chemical attachment of enzymes or NADH derivatives by using simple coupling reactions.

CC 001D09D02E; Applied sciences; Physicochemistry of polymers, Macromolecular chemistry, Materials science; Organic polymers
001D09D04I; Applied sciences; Physicochemistry of polymers, Macromolecular chemistry, Materials science; Organic polymers
001D09B01; Applied sciences; Physicochemistry of polymers, Macromolecular chemistry, Materials science; Radiation action

CT Electrochemical polymerization; Aniline polymer; Acrylic acid polymer; Electrodeposition; Composite film; Modified material; Electrodes; Catalytic reaction; Electrochemical reaction; Oxidation; NADH; Dinucleotide; Pyridine coenzyme; Electrochemical properties; Experimental study; Conducting polymers

L140 ANSWER 5 OF 7 DISSABS COPYRIGHT (C) 2010 ProQuest Information and Learning Company; All Rights Reserved on STN

AN 2003:23034 DISSABS Order Number: AAI3061253

TI Polymer stabilized magnetite nanoparticles and poly(propylene oxide) modified styrene-dimethacrylate networks

AU Harris, Linda Ann [Ph.D.]; Riffle, Judy S. [adviser]

CS Virginia Polytechnic Institute and State University (0247)

SO Dissertation Abstracts International, (2002) Vol. 63, No. 8B, p. 3739. Order No.: AAI3061253. 161 pages.
ISBN: 0-493-76930-7.

DT Dissertation

FS DAI

LA English

AB Magnetic nanoparticles that display high saturation magnetization and high magnetic susceptibility are of great interest for medical applications. Nanomagnetite is particularly desirable because it displays strong ferrimagnetic behavior, and is less sensitive to oxidation than magnetic transition metals such as cobalt, iron, and nickel. For in-vivo applications, it is important that well-defined organic coatings surround the nanomagnetite particles. It is rationalized that this will prevent any aggregation of the nanoparticles in-vivo, and may also enable efficient excretion and protection of the body from toxicity. Magnetite nanoparticles can be prepared by co-precipitating iron (II) and iron (III) chloride salts in the presence of ammonium hydroxide at pH 9-10. Oleic acid is known to effectively stabilize dispersions of nanomagnetite in nonpolar solvent. Stabilization occurs because the carboxylic acid group covalently reacts with the surface of the magnetite and the aliphatic chain extends out into the nonpolar solvent, preventing aggregation of the particles by a steric (entropic) mechanism. One goal of this work has been to develop a generalized methodology for stabilizing nanomagnetite dispersions using well-defined, non-toxic, block copolymers, so that the resultant magnetite-polymer complexes can be used in a range of biomedical materials. My objectives have included: (1) Understanding what types of polymer structures bind irreversibly to magnetite at the physiological pH and what block lengths are desirable, (2) Tailoring polymer block lengths to maximize the concentration of bound magnetite, yet preserve good dispersion and (3) Designing copolymers with both hydrophilic and hydrophobic tail blocks to enable dispersion in different types of carrier fluids. Hydrophilic triblock copolymers with controlled concentrations of pendent carboxylic acids were designed as steric stabilizers for magnetite nanoparticles. The triblock copolymers contain carboxylic acids in the central anchor block and controlled molecular weight poly(ethylene oxide) tail blocks. They were

utilized to prepare hydrophilic-coated iron oxide nanoparticles with biocompatible materials for magnetic field guidable drug delivery vehicles. The triblock copolymers synthesized contain 3, 5, or 10 carboxylic acids in the central segments with Mn values of 2000, 5000 or 15000 g/mol poly(ethylene oxide) tail blocks. A method was developed for preparing ≈10 rim diameter magnetite surfaces stabilized with the triblock polymers. The carboxylic acid is proposed to covalently bind to the surface of the magnetite and form stable dispersions at neutral pH. Stable dispersions were prepared with all triblock copolymers investigated. The polymer-nanomagnetite conjugates described in this thesis have a maximum of 35 weight % magnetite and the nano-magnetite particles have an excellent saturation magnetization of ≈66-78 emu/g Fe 3O4. Magnetization curves show minimal hysteresis. Powder X-ray diffraction (XRD) confirms the magnetite crystal structure, which appears to be approximately single crystalline structures via electron diffraction spectroscopy analysis (EDS). These materials form stable magnetic dispersions in both water and organic solvents. Transmission electron microscopy (TEM) photomicrographs show that the dispersions contain 10 nm diameter magnetite coated with the polymeric coatings.

CC 0495 CHEMISTRY, POLYMER

L140 ANSWER 6 OF 7 DISSABS COPYRIGHT (C) 2010 ProQuest Information and Learning Company; All Rights Reserved on STN

AN 88:22362 DISSABS Order Number: AAR8902435

TI POLYMER REACTIONS FOR GRAFTING OF GENE PROBES ONTO PIEZOELECTRIC CRYSTALS AS BIOSENSORS

AU CHIEN, LIANG-CHY [PH.D.]; FAWCETT, NEWTON C. [advisor]

CS THE UNIVERSITY OF SOUTHERN MISSISSIPPI (0211)

SO Dissertation Abstracts International, (1988) Vol. 49, No. 10B, p. 4340. Order No.: AAR8902435. 184 pages.

DT Dissertation

FS DAI

LA English

ED Entered STN: 19921118
Last Updated on STN: 19921118

AB Novel biosensors are specially designed for diagnostic identification of target nucleic acids. A DNA probe from a known source is grafted on the surface of a piezoelectric crystal. When the probe is incubated with target nucleic acid, a negative frequency shift of crystal is observed. Much smaller, or no decrease, in a crystal's frequency is observed when the probe is incubated with non-complementary nucleic acid.
The resonance frequency of an AT-cut, quartz, piezoelectric crystal is a function of the crystal's mass. This phenomenon is made use of in quartz piezoelectric biosensors. To make the biosensor, it is required that nucleic acid probes be chemically bound to a surface modified piezoelectric crystal. Usually, the modification of a crystal's surface is carried out by coating the crystal with a thin film of polymer as substrate. The polymeric substrate should be water insoluble and in some cases, should have accessible functional groups.
The methods employed in grafting nucleic acid probes onto polymeric substrate include: (1) Photografting of nucleic acid probe onto a polymeric substrate via nitrene insertion. (2) Solid phase reactions on an activated polymer surface, such as reductive amination or the carbodiimide coupling reaction.
For the purpose of grafting probe nucleic acids onto crystals, the preparation of polymeric substrates was carried out either by modification of existing polymers or synthesis of copolymers by free radical copolymerization. Photografting reactions were conducted by photolyzing of azido compounds such 1,3,5-triazido-2.4.6-trinitrobenzene (TATNB), or 2.6-bis(4-azidylbenzylidene)- cyclohexanone (ABC) to

chemically bind nucleic acid probes to poly(butyl methacrylate) (PBMA) or poly(oxycarbonylimino-4-1,3-phenyleneimino carbonyloxy octamethylene), polyurethane, (PU). The solid-phase reactions which were carried out on the crystal included: (1) Grafting nucleic acid probes via reductive-amination reaction of dialdehyde groups of terminally oxidized RNA probes and amino groups of poly(ethylene-co-N,6-aminohexyl acryl amidyl) (PEAA). (2) Using carbodiimide coupling reaction to graft gene probes onto polymeric substrates containing carboxylic acid groups, such as poly(ethylene-co-acrylic acid) (PEAAA), poly(methylmethacrylate-co-methacrylic acid) (PMMA-MAA), 1-amino caproic acid derivatized poly(ethylene-co-N-caproic acid acrylic amidyl) (PECAA) and poly(methylmethacrylate-co-N-caproic acid methacrylic amidyl) (PMMA-CAMAA), and poly(styrene-co-acrylic acid) (PSAA).

CC 0495 CHEMISTRY, POLYMER

L140 ANSWER 7 OF 7 EMA COPYRIGHT 2010 CSA on STN

AN 2001(1):C4-P-24 EMA Full-text

TI Calcification resistant polyurethanes modified with geminal bisphosphonate groups.

AU Alferiev, I.S. (Children's Hospital of Philadelphia); Vyavahare, N.R. (Children's Hospital of Philadelphia); Song, C.X. (Children's Hospital of Philadelphia); Levy, R.J. (Children's Hospital of Philadelphia)

NR MRS Vol. 599

SO Mineralization in Natural and Synthetic Biomaterials (2000) , 6 ref. p. 287-292, 2000
Published by: Materials Research Society, 506 Keystone Drive, Warrendale, PA 15086, USA
Conference: Mineralization in Natural and Synthetic Biomaterials as held at the 1999 MRS Fall Meeting, Boston, MA, USA, 29 Nov.-2 Dec. 1999
ISBN: 1-55899-507-2

DT Conference Article

CY United States

LA English

AB Non-esterified geminal bisphosphonate groups (0.06 - 0.12 mmol/g) were covalently attached to elastomeric polyurethanes (PU) based on 4,4'-methylenebis(phenyl isocyanate) (MDI) and represented by a polyether-urethane (PEU), a polyurethane-urea (PUU), and a polycarbonate-urethane (PCU). Auxiliary 6-bromohexyl or carboxylic groups were attached to PU via base-induced N- alkylation of urethane NH sites either with 1,6-dibromohexane or with lithium salts of omega - bromocarboxylic acids. An alternative method to introduce carboxylic groups into the polymers via reactions of bromoalkylated PU with thiol-containing carboxylic acids was found to be more suitable than the direct carboxyalkylation. The subsequent reactions either of thiol-containing bisphosphonates with the attached 6-bromohexyl groups or of 3-amino-1- hydroxypropylidene-1,1-bisphosphonate (pamidronate) with N-hydroxysuccinimide- activated carboxylic groups of PU led to the bisphosphonate-modified PU. The polymers do not undergo a significant degradation in the course of the modification reactions, their mechanical properties and elasticity remain mostly unaffected. Water uptake of the bisphosphonate-modified PU increased up to 26% depending on the extent of modification. Bisphosphonate-modified PUU showed a significantly lower in vivo calcification compared to the non-modified polymer.

CC P Polymers; C4 Chemical and Electrochemical Properties; P-C4

CT Conference Paper; Polyurethane resins: Reactions (chemical); Oxidation; Degradation: Biological effects; In vivo tests

ET N; H*N; NH; N cp; cp; H cp